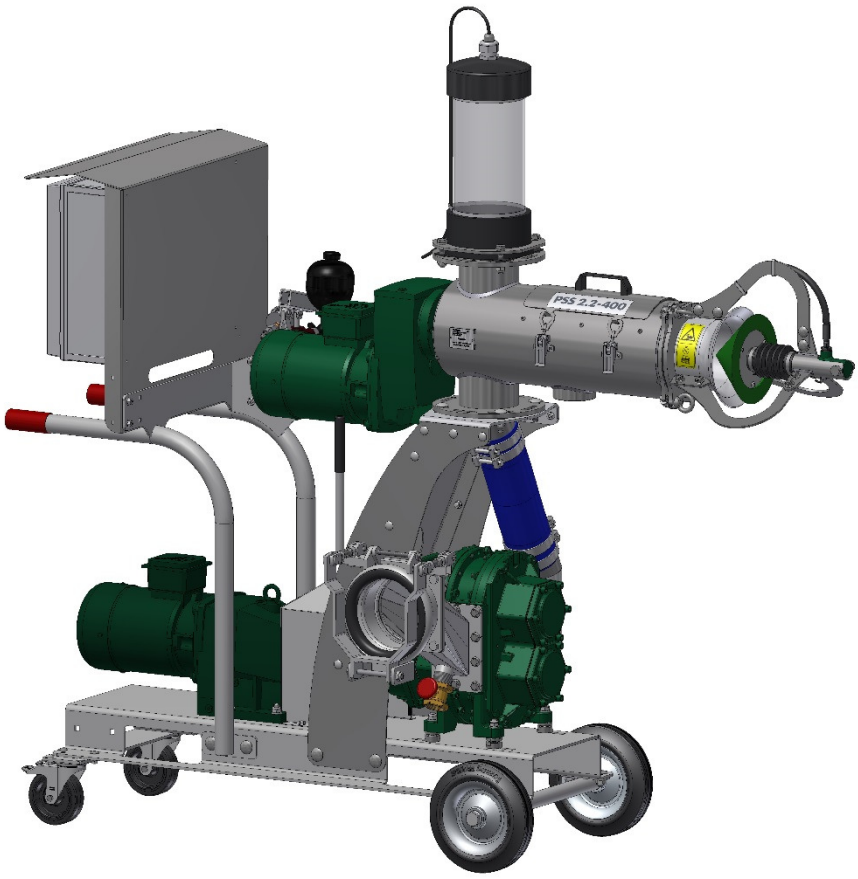
Stallkamp

OPERATING MANUAL

Screw press separator ComPress

PSS 2.2-400-M1508



Version 2

Document no.: 8500233 Version: March 2016

Space for notes:

General information

- **The technical specifications, weights and measures are to be considered approximate and not binding.**
- **Pictures are for illustration purposes and can deviate from the actual product.**

Date saved: 11/07/2017 11:14:00
Date printed 11/07/2017
BA_Separator PSS 2.2-400 M1508ComPress_englischV2_8500233.docx

1 TABLE OF CONTENTS

2 DECLARATION OF CONFORMITY PURSUANT TO MACHINERY DIRECTIVE 2006/42/EC (ORIGINAL, GERMAN VERSION)

Manufacturer: Erich Stallkamp ESTA GmbH

In der Bahler Heide 4·49413 Dinklage·Germany

Tel.: (0049) 04443 / 9666-0
Fax.: (0049) 04443 / 9666-60

Authorised representative for the composition of the technical documentation:

Dipl.-Ing. (FH) HeikoAnsorge

In der Bahler Heide 4·49413 Dinklage·Germany

Product name: Press screw separator ComPress PSS 2.2-400-M1508

Type: PSS 2.2-400-M1508; 2.2kW;

We hereby declare that the products listed above conform to the pertinent regulations of the EC Directive:

Machinery Directive 2006/42/EC

including all amendments and conform to the pertinent regulations of the Directive on electromagnetic compatibility:

EMC Directive 2004/108/EC

The following harmonised standards have been applied:

EN ISO 12100: 2010, Safety of machinery - General principles for design

EN 60204-1:2007-06, Safety of machinery - Electrical equipment of machines; Part 1: General requirements

EN 61000-6-1:2007, Electromagnetic compatibility (EMC) Part 6-1: Generic standards – Immunity for commercial environments

EN 61000-6-2:2005, Electromagnetic compatibility (EMC) Part 6-2: Generic standards – Immunity for industrial environments

Dinklage, dated 11. July 2017

Stallkamp
Erich Stallkamp ESTA GmbH
D-49413 Dinklage-Germany
In der Bahler Heide 4, Industriegeb. West

Erich Stallkamp ESTA-GmbH, Dipl.-Ing. (FH) H. Ansorge (AL-TPR, Authorised representative for GL)

This declaration is not an assurance of characteristics in the sense of the German law on product liability. The safety instructions provided in the product documentation must be observed. If any conversions or modifications are made to the product, this declaration shall lose its validity with immediate effect.

3 GENERAL INFORMATION

Our devices are developed according to the current state of technology, manufactured with great care and subject to a continual quality control. This operating manual should help you to get to know the device and to employ its proper operational possibilities.

The operating manual contains important notices in order to operate the device safely, appropriately and cost-effectively. It is necessary to observe the operating manual to ensure the reliability and high durability of the device and to avoid hazards.

The operating manual does not take local, on-site requirements into consideration; the operator is solely responsible for ensuring that these are observed, including by external installers.

3.1 Designation of notices in the operating manual

In the operating manual, safety references warning of dangers to persons are identified with the general hazard symbol according to DIN 4844-W9.

In the operating manual, warnings about electrical voltage are identified with the safety signs according to DIN 4844-W8.

All other notices which might restrict the functional reliability of the device or represent a danger for the machine if not observed are marked with the word:

ATTENTION!

This machine unit may not be operated beyond the values defined in the technical documentation with respect to conveying liquid, delivery flow rate, number of revolutions, density, pressure, temperature as well as motor power output or other instructions contained in the operating manual or contract documentation. If you have any queries, please consult the manufacturer.

The rating plate displays the most important operating data and the machine serial number. We request that this always be specified in the event of enquiries, subsequent orders and when purchasing spare parts.

Provided that additional information or notes are required or in case of damage, please contact our local field sales employee or contact us directly.

3.2 Unauthorised conversion and spare part manufacture

Conversions and modifications to the devices and their machine units are only permissible with the explicit approval of the manufacturer. The use of non-"original spare parts" abrogates all liability.

4 SAFETY

This operating manual contains fundamental information which must be observed during installation and operation as well as when performing maintenance work on the device.

It is therefore absolutely necessary that the installer as well as the responsible qualified personnel and operator read these instructions before installation and commissioning, and that they are continually available at the location where the machine is operated.

Not only the safety instructions in this operating manual must be observed, but also the warning signs and regulations of the respective professional association in the latest version.

4.1 Qualification of the personnel

The personnel performing the operation, maintenance, inspection and installation must be appropriately qualified for this work.

Area of responsibility, competence and the monitoring of the personnel must be precisely regulated by the operator. If the necessary skills are not available to the personnel, then they should be appropriately trained and instructed.

Furthermore the operator must ensure that the operating staff fully understands the contents of the operating manual.

4.2 Dangers if the safety instructions are not observed

Failure to observe the safety instructions can endanger persons as well as the environment and the machine. Failure to observe the safety instructions results in the loss of all claims for damages.

Specifically, failure to observe instructions can, for example, result in the following hazards:

- Failure of important functions of the device or system.
- Endangerment of persons due to electrical, mechanical, chemical or other exposure.
- Endangerment of the environment due to leakage of hazardous materials.

WARNING SIGNS

Observe all notices and warning signs. Dangerous gases can escape when agitating the liquid manure.

DANGER OF POISONING!

If the liquid manure is stored below slatted floors, the presence of persons in buildings during agitation or pumping is only permissible with sufficient ventilation. Therefore windows and doors must be open and the ventilator set to full power.

4.3 Safety-conscious work

Observe all safety instructions presented in this operating manual, the existing national regulations for accident prevention as well as possible internal work, operation and safety regulations of the company at all times.

Safety instructions for the operator and attendant:

- ✓ If hot or cold machine parts can pose a hazard, then these parts must be protected on site against contact.
- ✓ Contact protection for moving parts may not be removed while the machine is in operation.
- ✓ Any leakage of dangerous materials must be conducted away so that there is no endangerment to persons and environment. Observe statutory provisions.

4.4 Safety instructions for maintenance, inspection and assembly work

The operator has to ensure that all maintenance, inspection and installation work is carried out by authorised and qualified personnel.

Fundamentally, all work on the machine can only be carried out when the machine is at a standstill.

Directly after completion of the work, all safety and protection equipment must be reattached or made functional.

5 GUARANTEE

This section contains the general particulars for the guarantee. Contractual agreements are always treated with priority and are hereby not rescinded. The period of guarantee is a component of Stallkamp's general terms and conditions. Agreements deviating from this must be specified in writing in the order confirmation.

5.1 General

Stallkamp is obligated to repair every defect to products sold by Stallkamp under the condition:

- ✓ that it is a quality defect of the material, manufacture or design;
- ✓ that the defect is reported in writing to Stallkamp or the Stallkamp representative within the period of the guarantee;
- ✓ that the product is employed exclusively in the specified operating conditions described in the operating manual and employed for the intended purpose;
- ✓ that the monitoring device integrated in the product is correctly connected (temperature protection);
- ✓ that genuine Stallkamp parts are used.

5.2 Exclusion of liability

No guarantee or liability is assumed for damage to the device if one or several of the following points are applicable:

- A faulty configuration of the device on our part because of inadequate or incorrect information from the ordering party or operator;
- Failure to observe the safety instructions, regulations or the necessary requirements in this operating manual which apply according to German law;
- Installation, disassembly or repair of the device not in keeping with the regulations;
- Inadequate maintenance;
- Possible chemical, electrical or electrochemical influences;
- Wear and tear.

Since maintenance has an influence on the safety and functional capability of the device, it is an integral component of the guarantee. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work (**see 13 Maintenance and revision list for** PSS-M1508).

We expressly emphasise that this device is a fluid flow engine in which the protective coating is exposed to constant wear from the abrasive contents of the medium being pumped and should consequently be classed as a wearing part. Wear, damage and secondary damages which result from external influences on the protective coating are expressly excluded from the guarantee. The use of devices and/or the field of application and reliability for the application must be verified by the operator and does not form part of the guarantee.

The liability of Stallkamp thereby excludes any liability for personal damages, material damages or financial losses.

The manufacturer reserves the right to modify the performance, specifications or configuration data without prior information.

6 PRODUCT DESCRIPTION OF THE PSS 2.2-400-M1508

6.1 General description

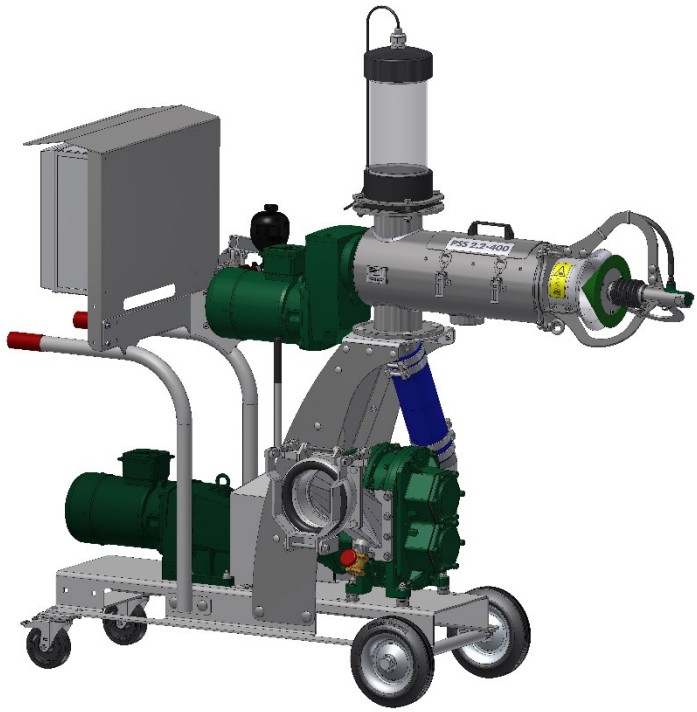
This operating manual applies to the standard model of the Stallkamp press screw separator ComPress PSS 2.2-400-M1508. The separator must not be operated in explosive environments.

Press screw separator ComPress PSS 2.2-400-M1508 comprising:

- Press screw separator PSS 2.2-400-M1508
- Rotary pump D-SW 70 S with 2.2 kW gear motor
- Pressure measuring unit 0-0.6 bar
- ComPress control
- Temperature of medium being separated up to max. 50°C -> separation without restrictions as long as the motor is not running in the overload range.

6.2 Functional principle

The Stallkamp press screw separator separates solid and liquid fractions from thick and thin raw liquid.



The raw liquid is sucked up by the rotary pump and pumped into the separator. The horizontally aligned screw conveys the raw liquid to the sieve basket. Gravity then forces the liquid fraction of the raw liquid to pass through the sieve basket, where it collects in the housing and drained off via the outlet port.

The solid fraction of the raw liquid in contrast remains in the sieve basket. The rotating screw collects this fraction from the sieve basket and conveys it to the outlet. A small clearance between the sieve basket and the screw guarantees thorough cleaning of the sieve basket. The solids conveyed to the outlet are squeezed by the adjustable counterpressure of the pressing cone in order to extract any remaining liquid from the solids.

The pressure inside the separator is monitored by a pressure measuring unit and kept constant by means of a control.

The precipitator efficiency and the throughput depend on the following factors:

- The nature of the raw liquid
- The selection of the sieve basket mesh width
- The setting of the operating pressure
- The setting of the pressing cone pressure
- The nature of the sieve and the screw

6.3 Proper use of the PSS-M1301

The separator is designed for a wide range of applications in which the solid and liquid fractions of pumpable mixed substances need to be separated, for example in the processing of cattle slurry and pig slurry or biomass where the solid and liquid fractions of a solid-liquid mixture need to be separated with the objective of:

- reducing the volume of the natural fertiliser;
- reducing the offensive smell when spreading fertiliser;
- recovery of the solid fraction for litter or fertiliser;
- composting the solids;
- recovery of the liquid for biogas plants with dry fermentation;
- reducing the nutrients for sprinkling of the liquid.

The separation depends on the solid fraction and the viscosity of the liquid.

6.4 Technical data

Press screw separator ComPress PSS 2.2-400-M1508 comprising:

Separator PSS 2.2-400-M1508

- Three phase motor: 400/690 V, 50 Hz, 3 ph., 1440 rpm
- Protection category: IP55
- Insulating category: F = 155°C
- Motor power output: 2.2 kW, 4-pole
- Nominal current: 4.65 A
- Gear seal: Radial shaft seal ring
- Press screw: Ø150mm, 1.4301, hardened surface in the external and pressarea
- Sieve basket: V2A, 1.4301, clearance 0.35 – 1.00 mm, other widths uponrequest
- Max. permissible operating pressure: 0.5 bar, optimum between 0.1 – 0.3 bar

Rotary pump D-SW 70 S

- Three phase motor: 400/690 V, 50 Hz, 3 ph., 1440 rpm
- Protection category: IP55
- Insulating category: F = 155°C
- Motor power output: 2.2 kW, 4-pole
- Nominal current: 4.65 A
- Number of revolutions: 123 rpm at 50 Hz
- Flow rate: 9.2 m³/h at 50 Hz

ComPress control

- Connection: 32-amp CEE connector
- Protection category: IP44 CEE connector, Rest IP65

7 INSTALLING THE PSS-M1508

7.1 Scope of delivery

The Stallkamp separator is delivered completely assembled. The supply and disposal lines are connected up by the customer. The following components can be optionally delivered with the separator:

- Chassis
- Hose and line accessories

7.2 Set-up and installation

7.2.1 Transport

To allow safe transport, the separator is fitted with lifting slots for forklift trucks. Please use appropriate means of transport for installation (crane, forklift truck, telehoist load lugger, chains, belts, etc.) in order to guarantee safe installation.

A chassis is optionally available ex stock. Make sure that the ground is level and solid when pushing. Only lay down the separator with secured castors. If necessary, take extra precautions to secure it (e.g. with chocks or straps).

7.2.2 Installation site

If the machine is installed permanently, the installation site for the separator must comply with the following criteria:

- The separator must be firmly anchored in order to avoid unintentional movement or tilting.
- If the separator is being installed on a frame, the statics must be sufficient for the separator when completely full.
- Sufficient access must be permitted for adjustments and maintenance work.
- It must be possible to expel and dispose of the solids freely.
- All disposed of liquids must be able to drain away without pressure.

7.3 Connecting the voltage

The separator is delivered completely wired and tested. To be able to use it, you must have a 32 A CEE power socket available. This connection must be protected with a 300 mA residual current circuit breaker. If you use a 30 mA residual current circuit breaker, the residual current circuit breaker could trigger when the separator is turned on or off.

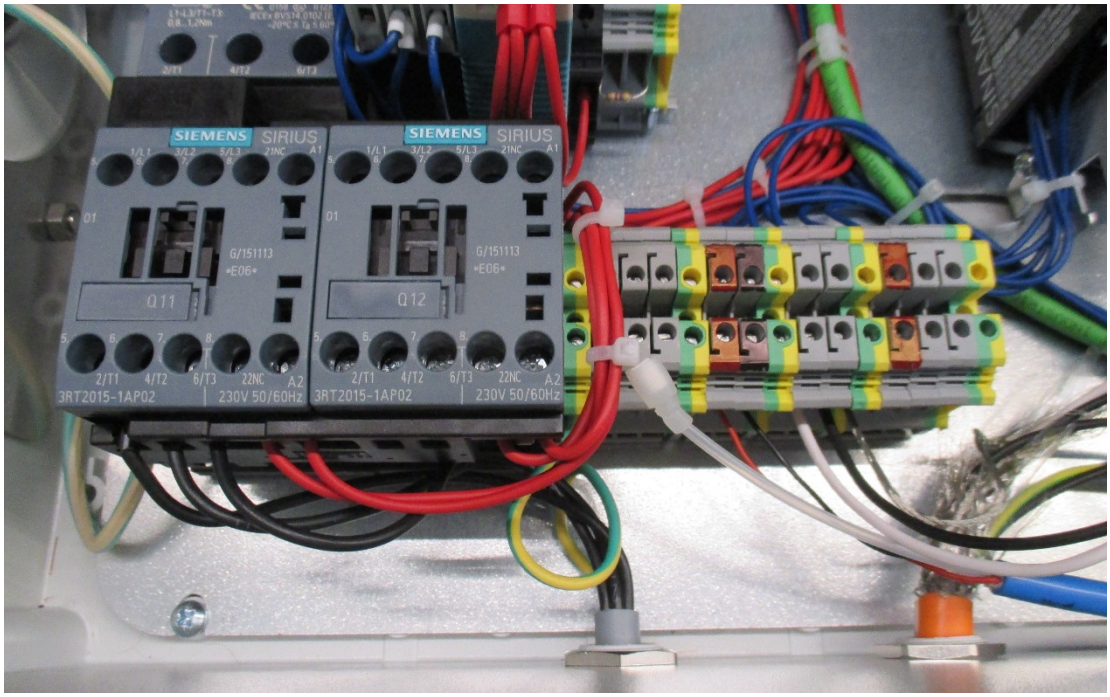
Set up the separator in such way that the switch box is protected against moisture and direct sunlight.

7.4 Connecting the motors and sensor (only if separator is delivered as separate components)

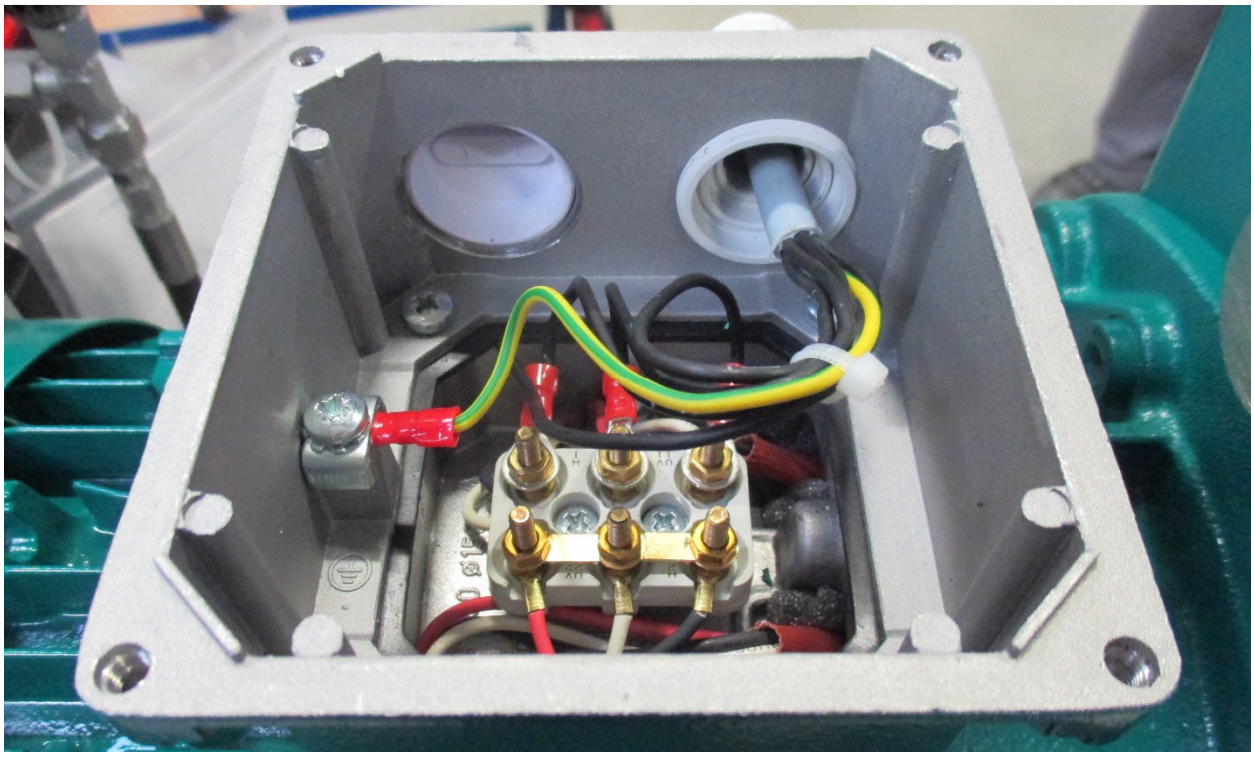
To ensure optimum control of the separator, always use control components that are approved by us.

7.4.1 Separator connection

Connect the 3 leads L1 / L2 / L3 to the connections T1 / T2 / T3 of contactor Q11. The protective conductor PE must also be earthed.



Also connect the corresponding 3 leads to the separator. Earth the protective conductor.

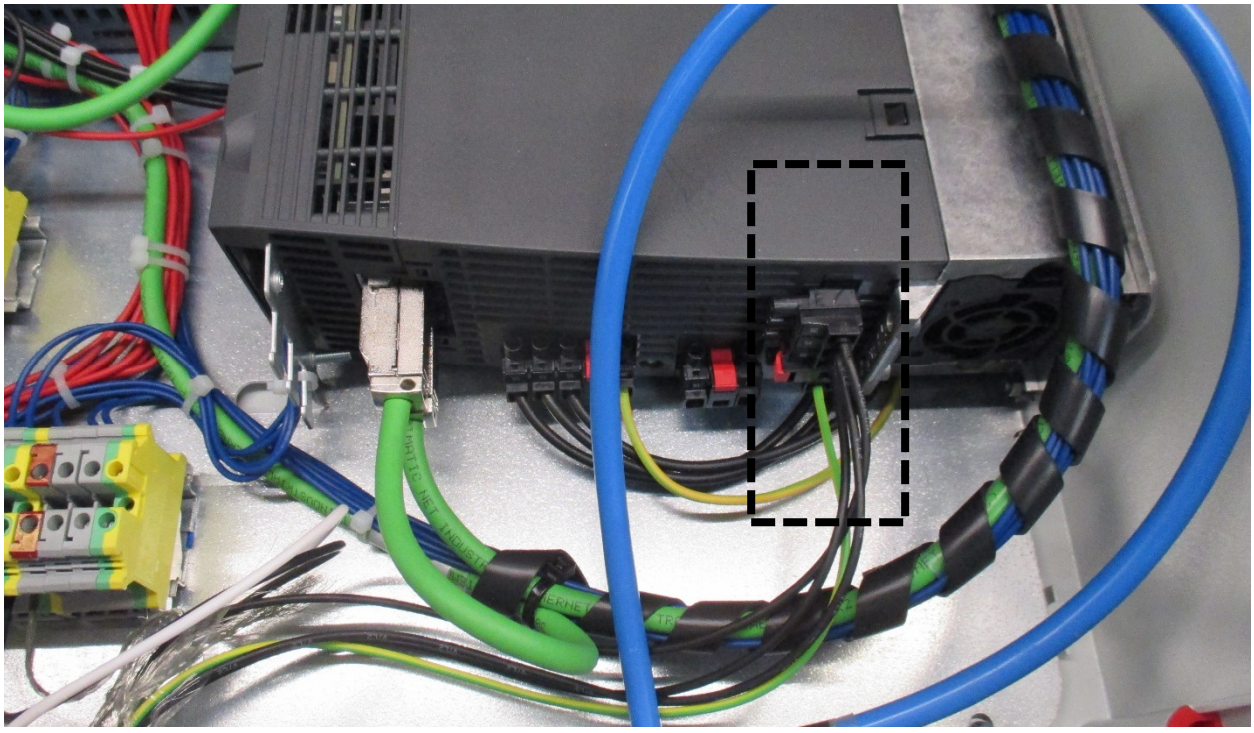


7.4.2 Rotary pump connection

The rotary pump is connected to the frequency converter and to the terminals "Thermo 1" + "Thermo 2".

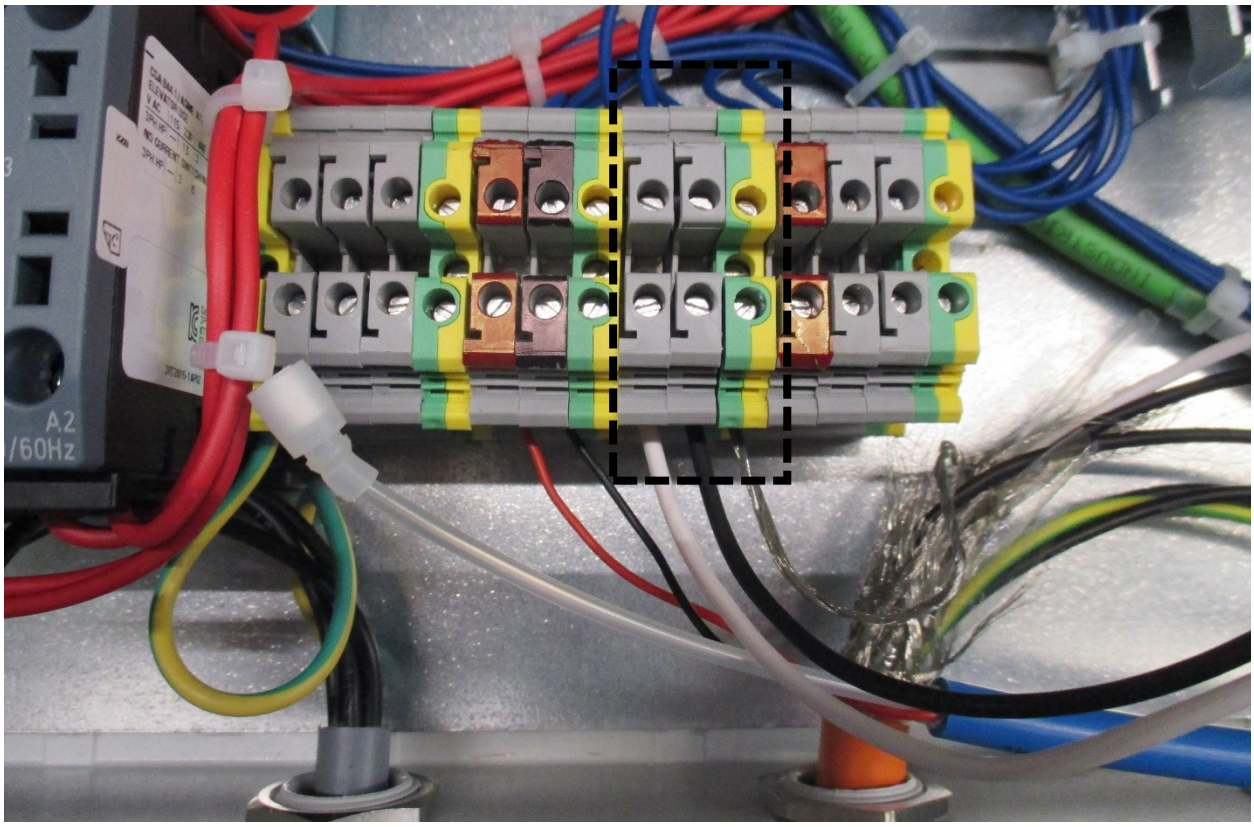
It is recommended to use a shielded cable with 4G 1.5mm² + 2 x 1.5 mm².

Connect the 4 leads PE/ L1 / L2 / L3 to the terminals PE / U1 / V1 / W1 of the frequency converter.

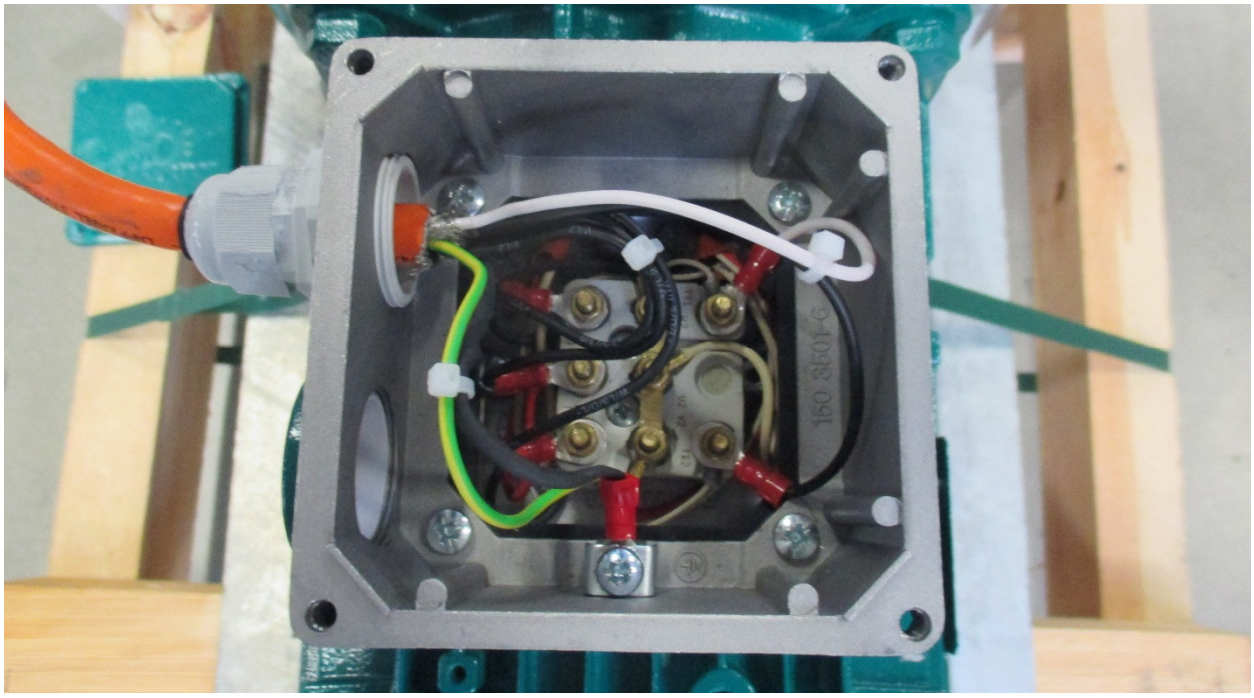


The thermostat relay (opener) of the gear motor must be connected to the terminals "Thermo 1" and "Thermo 2".

Connect the shielding to the earth connection.



The three leads (L1 / L2 / L3) must be connected accordingly to the gear motor of the rotary pump. Connect the two leads of "Thermo 1" and "Thermo 2" to the thermal switch of the gear motor. Earth the protective conductor and the shielding (attention: the shielding must not touch the contact terminals. It is recommended to isolate it.)



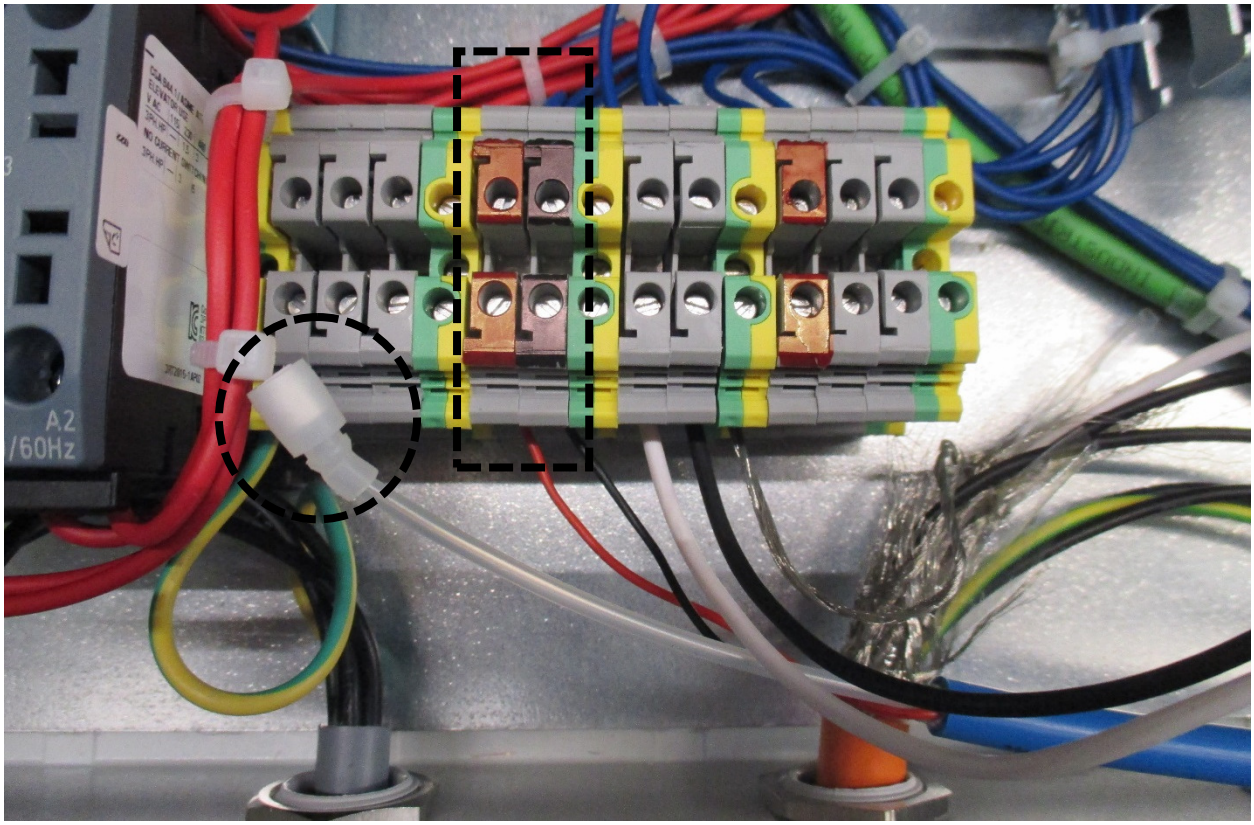
7.4.3 Pressure sensor connection

Connect the two leads of the pressure sensor as follows:

Red - > "+24V"

Black -> "Pressure sensor GND"

When laying the pressure sensor line, make sure that is not kinked. The reference pressure line must also terminate in the switch box and must always have a filter.



7.4.4 Functional test

After connecting the components, you have to carry out a functional test. Switch on the control. (Before starting, read chapter *8.2 Control* system.) Turn the selector switch to "Manual operation". Turn the selector switch of the rotary pump and the separator to "O". Carry out the following tests:

Action	Result	Fault elimination
Switching on the separator *Only switch on the separator briefly to avoid wear when dry-running*	The separator rotates in the direction of the arrow on the gear motor.	Wrong direction of rotation: ➔ Switch two phases round. Does not rotate: ➔ Check if the motor protection switch failed from triggering. (Additional fault message in display) ➔ Check if all leads are connected. ➔ Check if the motor can rotate freely.

	A current of approx. 3 A is displayed at idle speed	0 A is displayed ➔ Check if all leads are connected. The motor must rotate A value higher than 4 A is displayed ➔ Check if all leads are connected and that the motor can rotate freely.
Switching on the rotary pump *Only switch on the rotary pump briefly to avoid piston wear. It is recommended to fill the pump with liquid.*	The rotary pump rotates and pumps according to the selected flow direction	Wrong direction of rotation: ➔ Switch two phases round. Does not rotate: ➔ Check if all leads are connected. ➔ Check if the motor can rotate freely (rotary pump not blocked). ➔ Check if the thermostat relay is connected ➔ Check if there is a frequency converter fault message
Pressure sensor measurement *Remove the pressure sensor from the screw connection and press it lightly against the measuring surface with the tip of your finger. Attention: never touch the the measuring surface with pointed objects.*	A pressure between 0 and 0.7 bar is displayed, depending on the force applied.	Only 0.0 bar is displayed. ➔ Check if the sensor is connected properly.

7.5 Gear motor

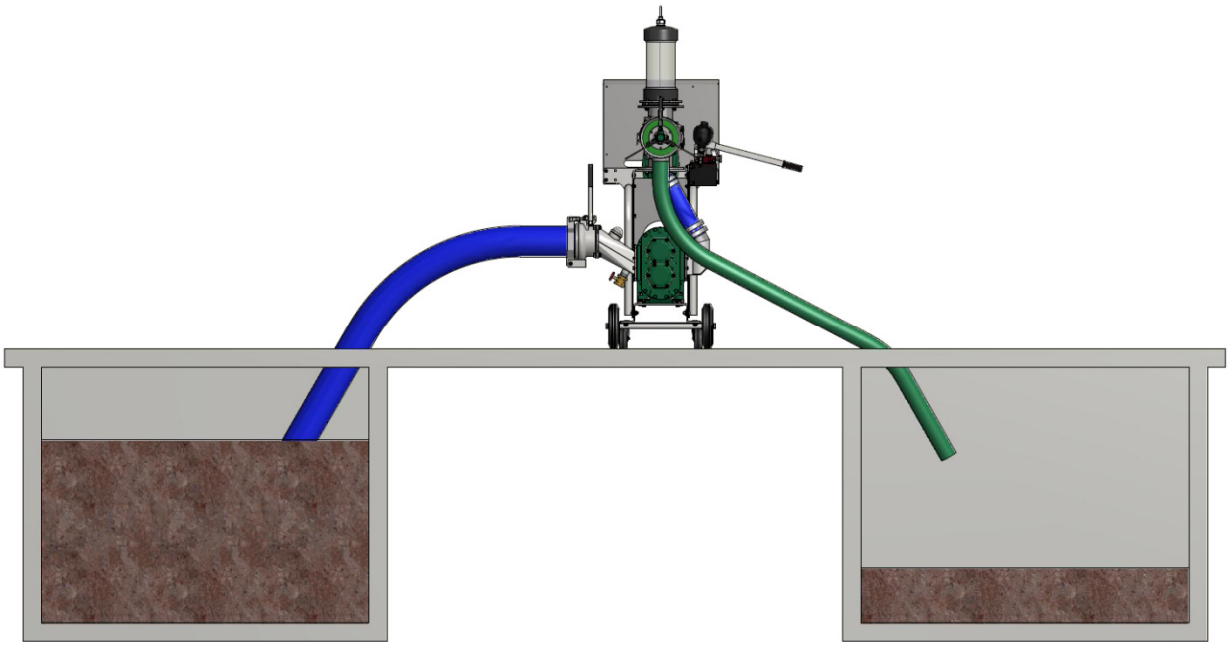
The gear motors are equipped with ventilation to compensate for the damaging air pressure differences between the gear interior and the environment. This vent is closed in the delivery state to prevent oil leaks during transport. Before commissioning, you must open the air vent by removing the sealing plug.

The sealing plug must be re-fitted for transport.

7.6 Connecting the supply and disposal lines

The liquid to be separated is sucked in by the rotary pump. The rotary pump is equipped with a 6" Perrot M part on the suction side. Connect the suction and pressure hose here. It is recommended to install it in 6" sections. Keep the suction length and height as short as possible to ensure smooth operation. Make sure that the coupling is closed completely and that no air can penetrate through a leak.

The separated thin portion is unpressurised and able to drain down freely through the 3" connection with inside thread. It can optionally be equipped with a hose connector or a Storz coupling. It is recommended to install this line with a suction and pressure hose or fixed pipes as well. Always make sure there is sufficient gradient. For short lengths (< 15m), it is also possible to use a flat hose.



Set-up example: Left 6" suction hose, right 3" drain hose

8 OPERATING AND COMMISSIONING THE PSS-M1508

8.1 Prior to commissioning: Safety instructions

The operating manuals of the individual components must be read and understood before commissioning.

The following rules should fundamentally be observed to prevent accidents during maintenance and installation work:

(1) Check that the separator is stable.

(2) Check the oil level of the gear motor and fill up if necessary. Lubricate the bearing.

(3) Check that the supply and disposal lines are connected correctly and have no leaks. Pressure-free drainage is essential.

(4) Check the direction of rotation.

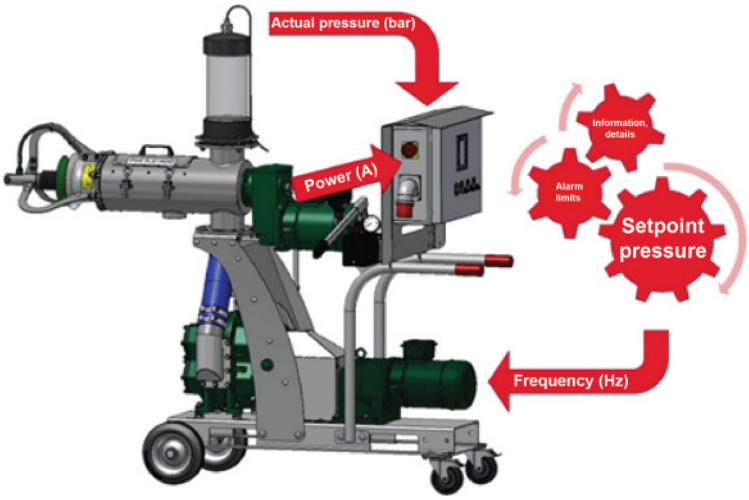
(5) Check that the motor protection is set correctly.

8.2 Control system

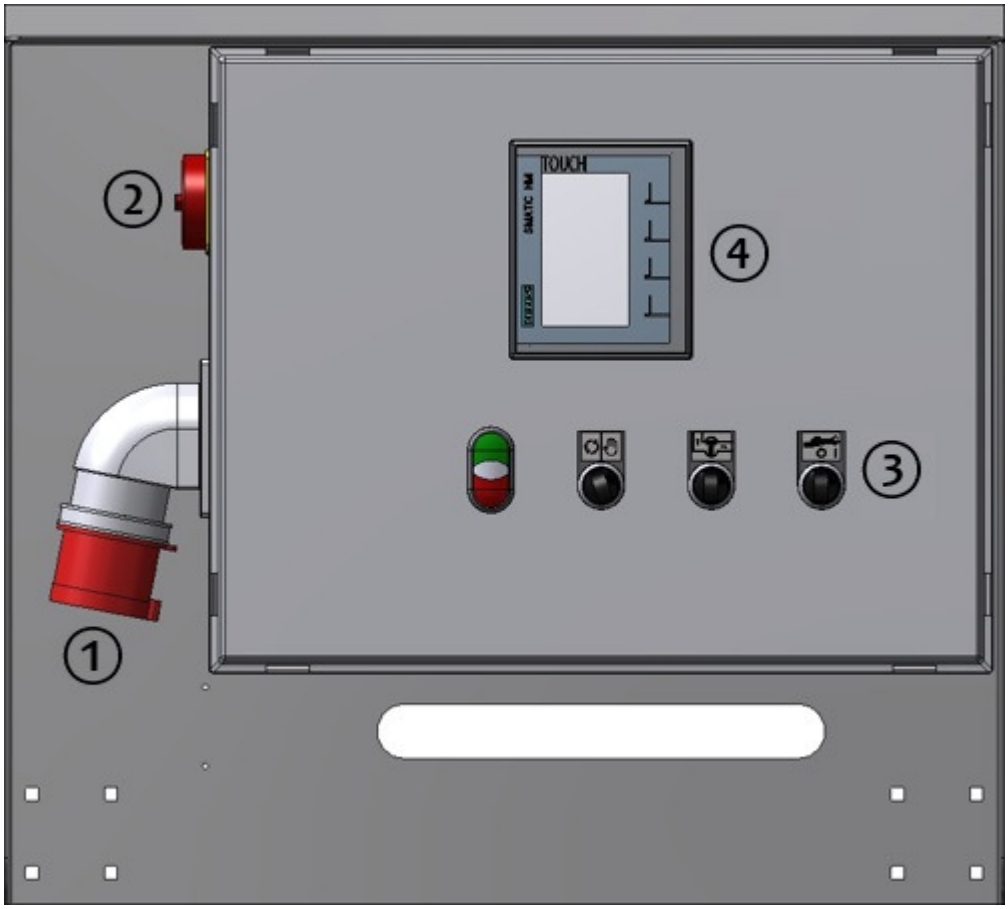
8.2.1 Functions

The control of the ComPress separator constantly monitors the operating pressure (actual pressure) and compares it to the set setpoint pressure. If the setpoint and the actual pressure are identical, the rotary pump continues rotating with the same number of revolutions. If the actual pressure and setpoint pressure are not identical, the number of revolutions is increased (actual pressure <setpoint pressure) or reduced (actual pressure >setpoint pressure) until the actual pressure and setpoint pressure are identical.

At the same time, several data streams are also analysed or monitored.



8.2.2 Control units



1. **32 amp CEE connector for electrical connection**
   Connect the connector to the power cable (see *7.3 Connecting the voltage*)
2. **Main switch**
   To switch on and off the entire machine.
3. **Control keys and selector switch**
   To operate the separator in Manual and Auto mode (see *8.2.3 Control keys and* selector switch)
4. **Touch screen**
   Displays information and allows you to set parameter values (see *8.2.4 Touch* screen)

8.2.3 Control keys and selector switch

The switch-key and switches are used for operating the separator in Manual and Auto mode.

Auto mode		**Manual mode**	
Separation Start/Stop	**Operation selector switch** Auto/Manual	**Rotary pump** Forward / Off / Back-ward	**Separator** On / Off




Auto/Manual mode selector switch: The separator control system can be switched between Auto and manual operation. In Auto mode, it is only possible to operate the separation dual switch-key. Only the rotary pump and the separator switch can be operated in Manual mode. In Manual mode, these two switches are only activated if they are both set to "0".

Manual mode may only be entered to start or stop the separation process.

Start/Stop separation: The separation process can be started or stopped from the dual switch-key.

Rotary pump Forward / Off / Backward: The rotary switch allows the rotary pump to be operated in both flow directions. The number of revolutions is pre-set permanently and cannot be modified.

Separator On / Off: The separator can be switched on via the rotary switch.

8.2.4 Touch screen

The touch screen displays information and can also be used to set a number of parameters for the separation process. The menu navigation is structured as follows.

Home
- ├ Pressure measuring unit
- ├ Separator
- ├ Rotary pump
- ├ Faults

Settings
- ├ Operating hours
- ├ Factory settings
- ├ Service

Control keys

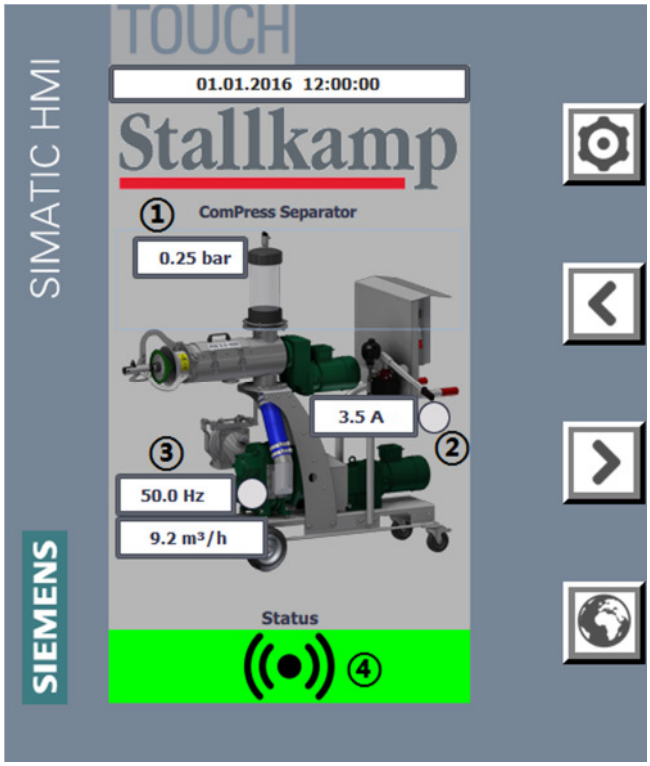
The control keys on the touch screen have the following functions


Display "Settings" page


Go back to previous page


Go to next page


Display "Home" page



"Home" page

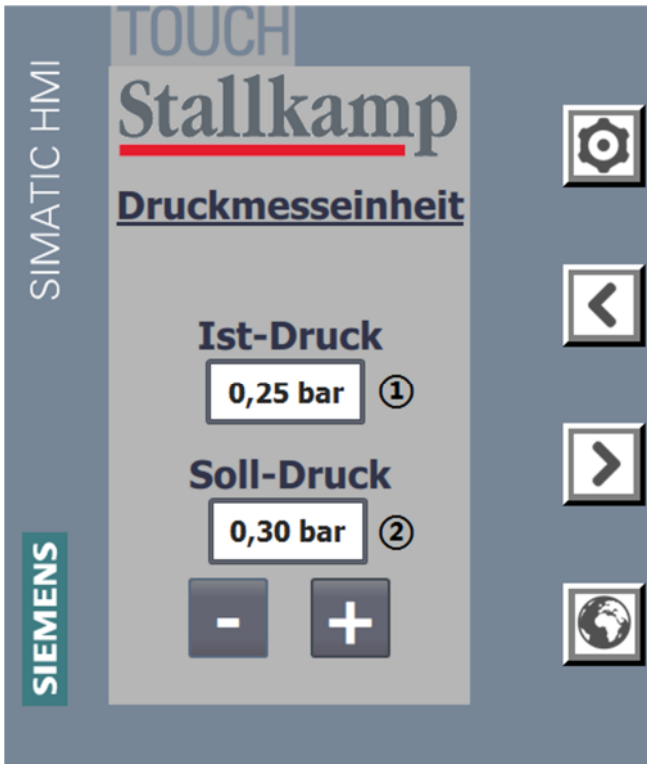
① Indicates the current actual pressure. Clicking takes you to the "Pressure measuring unit" page

② Indicates the power consumption of the separator. The round lamp indicates the current status of the power monitoring. Clicking takes you to the "Separator" page.

③ Indicates the number of revolutions and the throughput of the rotary pump. The round lamp indicates the current status of the number of revolutions monitoring. Clicking takes you to the "Rotary pump" page

④ Indicates the status of the system.
Green = ok
Red flashing = fault, system cannot be operated.
Clicking takes you to the "Faults" page

Status of the lamps:
Grey: Monitoring deactivated
Green flashing: Monitoring activation in progress
Green: Monitoring active
Red: Monitoring has triggered a fault



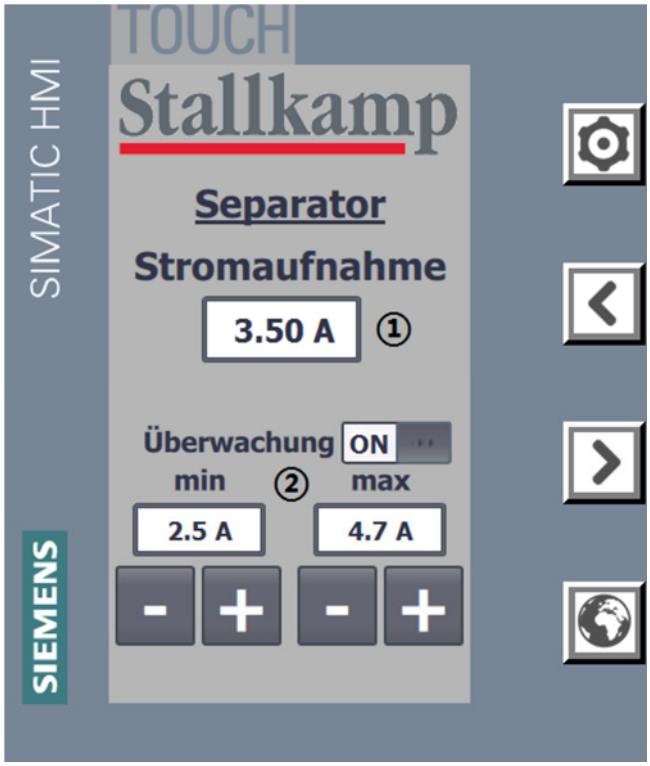
"Pressure measuring unit" page

① Indicates the current actual pressure.

② Indicates the setpoint pressure. This setpoint pressure can be changed using the -/+ keys.

Information:

A higher pressure gives a higher throughput. However, high pressure also increases the risk of breakage and leads to increased wear.



"Separator" page

① Indicates the current power consumption.

② Here you can monitor the power consumption of the separator. For this purpose, the slide must be set to "ON". The -/+ keys allow you to specify the permitted power consumption range of the separator. If the separator exceeds or falls below this range, the system switches to fault mode. The fault must be acknowledged before the system can be taken into operation again.

Information:

If monitoring is active, the first 30 seconds are not monitored (start-up time). Fault mode is only triggered if the limits are exceeded or undercut for more than 3 seconds.

The power consumption is still monitored separately by a motor protection switch.

"Rotary pump" page

① Indicates the current frequency and theoretical throughput.

② Here you can monitor the frequency of the rotary pump. For this purpose, the slide must be set to "ON". The -/+ keys allow you to specify the permitted frequency range of the rotary pump. If the rotary pump exceeds or falls below this range, the system switches to fault mode. The fault must be acknowledged before the system can be taken into operation again.

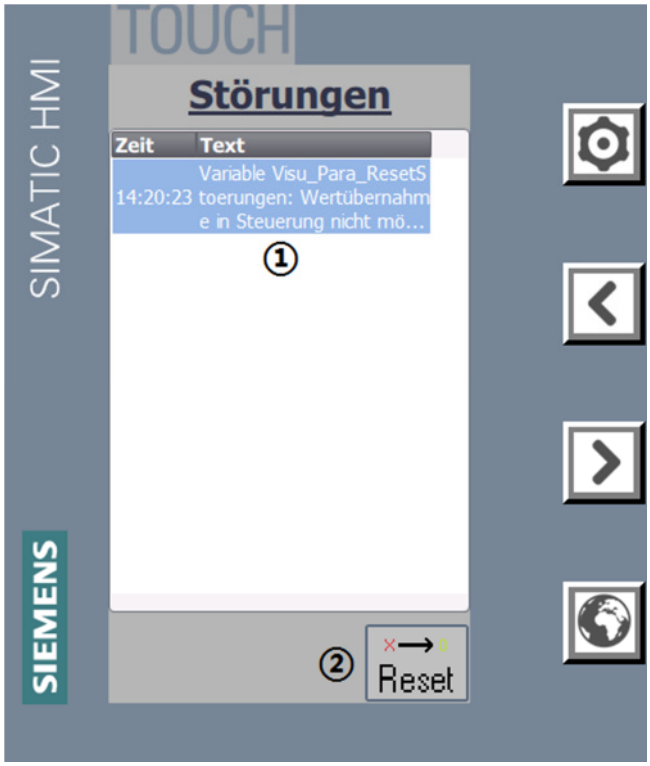
Information:

If monitoring is active, the first 30 seconds are not monitored (start-up time). Fault mode is only triggered if the limits are exceeded or undercut for more than 3 seconds.

Monitoring is reactivated with each start-up.

It is recommended to keep monitoring active. For example, if a pipe bursts, breaks or the intake line is empty, a pressure drop occurs resulting in a frequency surge. This is detected as a fault. If the separator is clogged, the pump slows down and this again is detected as a fault.

For a quick reaction, the selected frequency range should not be much wider than the current one. In some cases, it is possible that the consistency of the liquid could change over time. This results in a frequency surge or drop, although no real fault exists.



"Fault" page

① Indicates the current fault and time of occurrence

② Use the "Reset" key to acknowledge the fault. A fault can only be acknowledged if it has been rectified beforehand.

Information:

For an explanation of the faults, see *9.1 Display messages*

"Settings" page

① Indicates the installed software versions of the control (CPU) and monitor (HMI).

② Use these buttons to access the pages "Operating hours", "Factory settings" and "Service".

③ Click on the drop-down menu to set the language.

Information:

The service area is protected by a password and may only be accessed by the Stallkamp service personnel.

"Operating hours" page

① Current number of operating hours of the separator. This counter is active as soon as the separator is on.

② Current number of operating hours of the rotary pump. This counter starts as soon as the separator is switched on.

③ Operating hours left counter. This starts as soon as the separator or the rotary pump starts running. The counter can be reset to 0 by clicking the ">0<" key.

"Factory settings" page

The following parameters are reset to factory settings from the Factory settings page.

"Pressure measuring unit" page

Setpoint pressure	0.30 bar

"Separator" page

Monitoring	ON
min.	2.5 A
max.	4.7 A

"Rotary pump" page

Monitoring	ON
min.	20.0 Hz
max.	50.0 Hz

Information:

The factory settings are the values recommended by us. These values might have to be adjusted to match the consistency of the liquid.

8.3 Setting the hydraulic hand pump

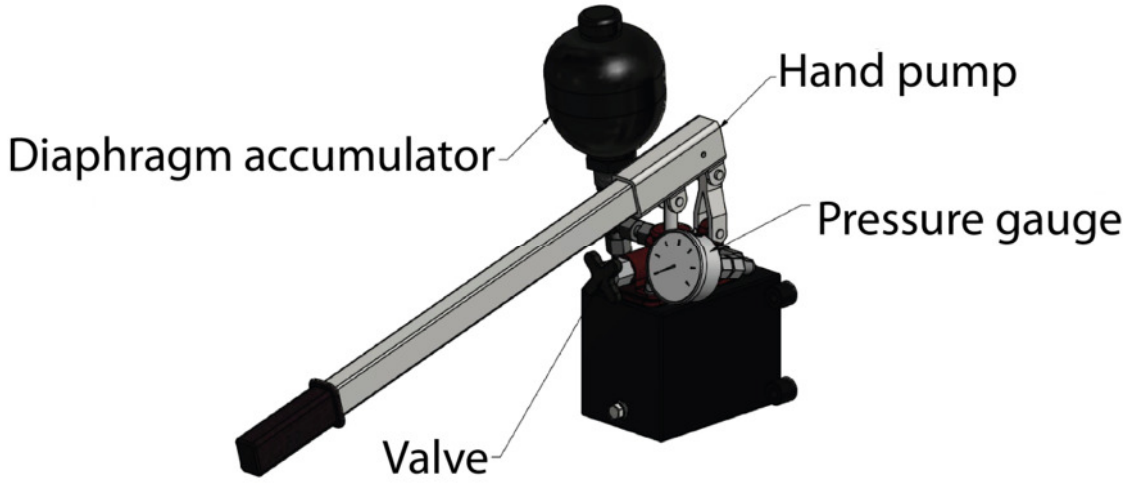
The hydraulic hand pump is used for adjusting the pressure of the conical head and thus the DM (dry matter) content of the solid matter. The following points must be observed:

- The higher the pressure, the higher the DM content.
- High DM content causes high power consumption. The maximum permissible power consumption must be observed! The motor may get overloaded.
- High DM content leads to increased press screw and sieve basket wear.
- Increased DM content causes less throughput.
- Overly low pressure might result in breakage at the conical head.

Close the valve to adjust the pressure. Pressure can now be built up by pumping the lever. This can be read on the pressure gauge. To lower the pressure again, you have to open the valve briefly.

Keep an eye on the pressure when starting the separator. The pressure may need to be corrected, depending on the application.

The diaphragm accumulator allows the conical head to "bounce" without much change in system pressure. In order for the diaphragm accumulator to function properly, a pressure of at least 7 bar must prevail in the system.



8.4 Commissioning

In order to achieve an optimum separation result, it is important that the liquid to be separated is mixed well and homogeneous prior to commissioning. Further agitation is necessary if the liquid separates again during separation.

To take the separator into operation, proceed as follows:

(1) Fill the rotary pump with as much water as possible to optimise the suction behaviour of the pump.
(2) Switch on the control by turning the main switch to "I".
(3) The control starts. Click "Start" on the monitor. The "Home" page appears.
(4) Apply a pressure of at least 10 bar on the conical head.
(5) It is recommended to define a setpoint pressure of 0.10 bar on initial commissioning.
(6) Set the operation switch to "Auto" and press "Start".
(7) The separator switches on and the rotary pump starts up. The set setpoint pressure is reached after a start-up time.
(8) Observe the build-up process of the plug at the outlet. If necessary, readjust the pressure of the hydraulic pump. Observe the maximum power consumption of the separator.
(9) Change the parameters "Setpoint pressure", "Separator pressure" and "Rotary pump monitoring" as required.

8.5 Terminating the separation

Press the "Stop" key. The separation operation is terminated. It is recommended to turn the operation switch to "Manual". Allow the separator to keep on running briefly to release the pressure from the system. The pump can be run backwards to empty the suction line from liquid.

8.6 Winter operation and extended periods of inactivity

At temperatures under 0°C or during extended periods of inactivity (> 1 weeks), the separator should be completely cleared of liquids and fixed phases following operation. In addition, the pump and lines must be drained of liquids.

Separator

Eliminate all pressure from the conical head. Switch the separator to manual operation to remove a large part of the solid matter. Complete cleaning is only possible by opening the outlet flap *10.3 Press screw and sieve* basket replacement.

Rotary pump

In manual operation, the rotary pump can be run backwards to pump the liquid out of the line. For almost complete emptying, the slide must be opened at the connecting piece and the pump should convey towards the connecting piece.

Increased wear can result, if the separator and rotary pump are allowed to run dry for an excessively long time.

9 FAULTS

Troubleshooting work should only be carried out by suitably trained personnel. Please observe the safety instructions (see 4 *Safety*).

If your fault is not listed or cannot be rectified, please contact us or our representative.

9.1 Display messages

Message	Cause	Remedy
Separator motor protection switch triggered	The motor protection switch of the separator is triggered.	- Check that the setting is correct. - Check if the drive is blocked. - Reduce the pressure of the conical head. - Reactivate motor protection switch.
Minimum fault message for pump	Lower pump frequency limit is reached.	- Check for blockages. - Reduce frequency limit.
Maximum fault message for pump	Upper pump frequency limit is reached.	- Check for breakage. - Increase frequency limit. - Check suction hose for leaks - Check the rotary pump for wear. - Reduce the setpoint pressure if the frequency has already been set to the maximum.
Minimum fault message for separator current	Lower limit for the separator current is reached	- Check the DM content of the solid matter. - Increase the pressure of the conical head. - Reduce current limit.
Maximum fault message for separator current	Upper limit for the separator current is reached	- Check the DM content of the solid matter. - Reduce the pressure of the conical head. - Increase current limit.
Fault occurred at pump frequency converter	Fault in the rotary pump drive	- Check the rotary pump for blockages - Check the motor temperature

9.2 General faults

Fault	Cause	Remedy
Separator / rotary pump turns in the wrong direction	Phases connected wrongly	- Switch two phases round
Control has no power Fault circuit breaker triggers	Wrong electrical connection	- Check electrical connection (see *7.3 Connecting the voltage*)
No liquid is sucked in	Piston worn out	- Replace piston
	Wrong direction of rotation	- Switch phases round
	Pump does not rotate	- Check for blockages/debris
	No underpressure	- Check piston for wear - Fill rotary pump with water - Check suction hose
Solid matter is too wet	Cone pressure is too low	- Increase pressure. Observe separator

		power consumption!
Solid matter is too dry	Cone pressure is too high	- Reduce pressure. Danger of breakage if pressure is too low.
Throughput is too low	Incorrectly inserted sieve	- Rotate the sieve by moving the motor-side contact surface towards the outlet (only if there is a fault during initial commissioning)
	Sieve is tight	- Clean the sieve - Select a different clearance width
	Sieve and/or screw is worn out	- Replace sieve and/or screw.
	Setpoint pressure is too low	- Increase setpoint pressure
No actual pressure is built up	No liquid is sucked in	- See above
	The solid matter content in the liquid to be separated is too low	- Agitate the liquid until it is homogeneous. Make sure that it stays homogeneous. - Select a smaller clearance width.

10 MAINTENANCE OF THE PSS-M1508

The specified maintenance and inspection work must be performed regularly. These tasks may only be carried out by trained, qualified and authorised personnel. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work (see *13 Maintenance and revision list for* PSS-M1508).

10.1 Maintenance intervals

The separator must be inspected for damage before every use. In particular the cable must be proven to be free of damage. In addition, the secure positioning of all screws and other fastening devices must be verified.

10.1.1 Recommendation: Every 14 days

10.1.1.1 Lubricate the sealing elements

The separator has a lubricating point (lubrication nipple) with an outlet which controls the seal. The seal must be lubricated with a waterproof, high-performance lubricant.

Important:

The lubrication must always be performed when the machine is running and to be specific:

1.) before use following medium and long pauses in operation (14 days to 4 weeks);

2.) after every use.

The fill level should not exceed 2-4 strokes with respect to the hand lever press.

10.1.2 Recommendation: Every 3 months

10.1.2.1 Check the power consumption at the ammeter

Power consumption is constant during normal operation. Occasional current fluctuations are caused by the consistency of the medium being conveyed. If a constantly increased power consumption is measured, contact our sales representative.

10.1.3 Hydraulic system visual inspection

The hydraulic system must be inspected for damages or leaks. Any existing damages or leaks must be rectified.

10.1.4 Recommendation: Every 6 months in continuous operation

10.1.4.1 Check the shaft seal

The shaft seal is a wearing part and must be replaced at the latest every 4,500 operating hours when the separator is in continuous operation. Please contact us or our responsible sales representative.

10.1.5 Recommendation: Every 12 months

10.1.5.1 Controlling the gear oil

The oil filling in the gear must be checked once annually. If oil is missing or contaminated with water or other media, the separator must be taken out of operation immediately. In this case, the oil must be changed immediately and the shaft seals must be exchanged.

10.1.5.2 Check the tightening torque of all screw connections

Every 9,000 operating hours or at least once annually we recommend checking the secure positioning of the screw connections in the scope of maintenance work. The tightening torques for stainless steel screws in Nm for different thread sizes are shown below:

(M8 = 18 Nm, M10 = 33 Nm, M12 = 57 Nm, M16 = 135 Nm, M20 = 150 Nm)

10.1.5.3 Visual inspection and cleaning of the separator

Every 9,000 operating hours or at least once annually we recommend checking the separator for damage and soiling in the scope of maintenance work. Deposits, blockages and fibrous materials adhering to the opened separator must be removed. The separator can be rinsed with a hose pipe but not with a pressure cleaner. Damaged components must be exchanged immediately. Please contact our sales representative.

10.1.6 Recommendation: Every 6 years

10.1.6.1 Replacing the hydraulic hose

The hydraulic hose must be replaced by a new one after a maximum of 6 years. Replacement is required if damages are noted before this period elapses.

10.2 Control of the clearance width between the screw and the sieve

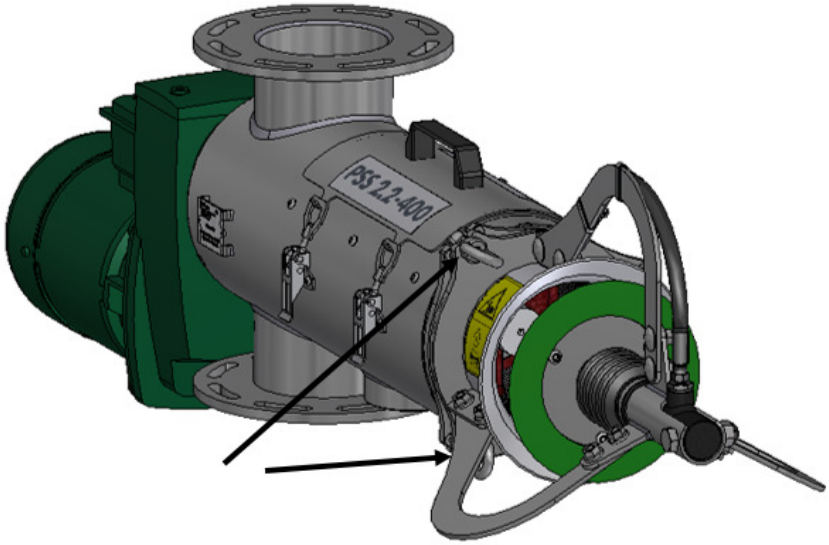
The clearance width between the press screw and the sieve basket can be checked by performing a visual inspection from the outlet towards the sieve basket. This should be as small as possible. A reduction in performance might occur if this clearance is larger than 1 mm.

The left image shows a suitable clearance and the right image shows light signs of wear.

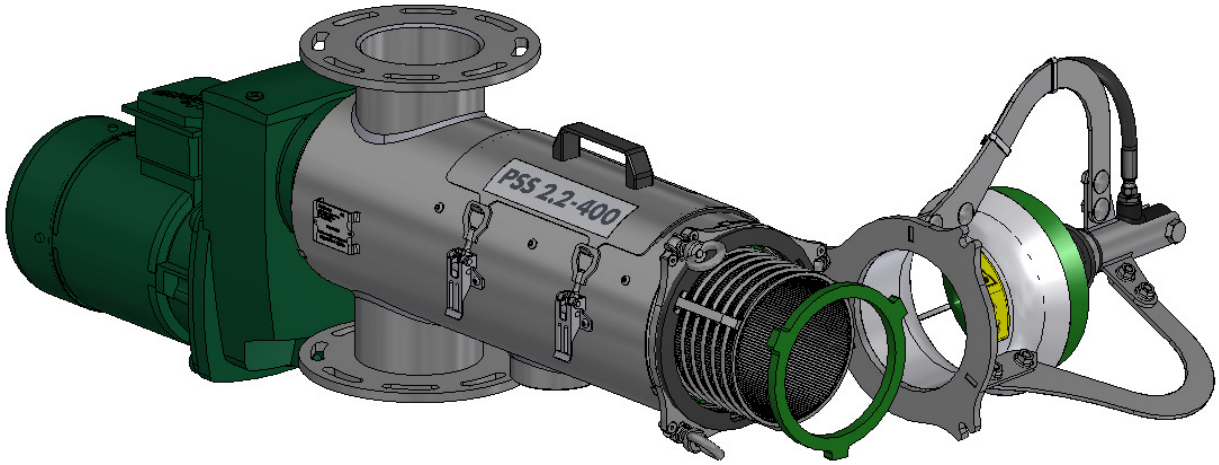
10.3 Press screw and sieve basket replacement

To replace the press screw and/or the sieve basket, proceed as follows:
(*** These steps can be skipped when replacing the sieve basket)

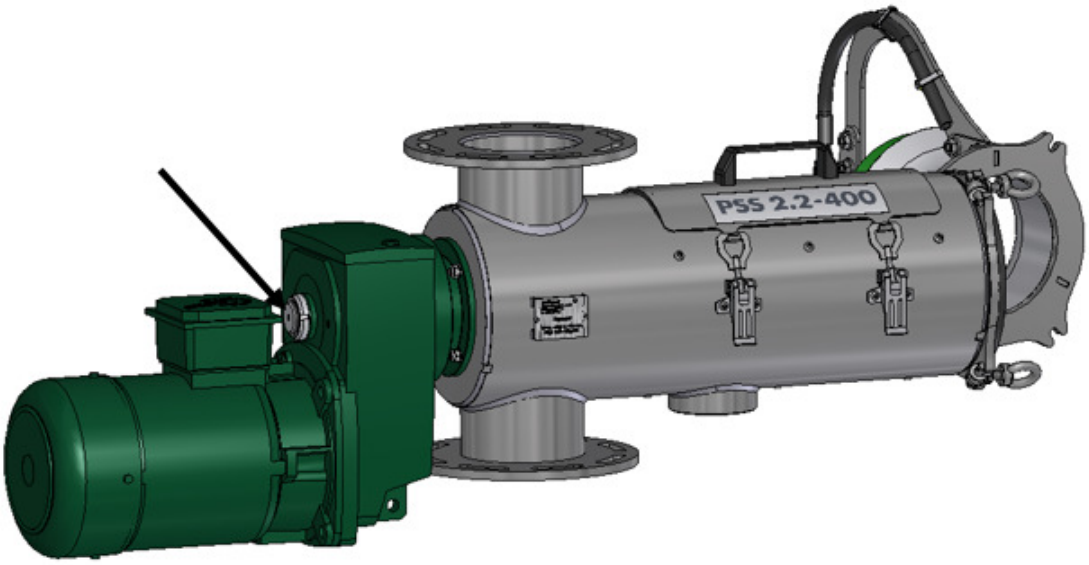
1. Switch off the supply pump and continue separating until all the liquid has been processed.
2. Relieve the pressure from the hydraulic hand pump and allow the separator to run for approx. 30 seconds.
3. De-energise the machine.
4. Open the outlet by loosening the two ring nuts.



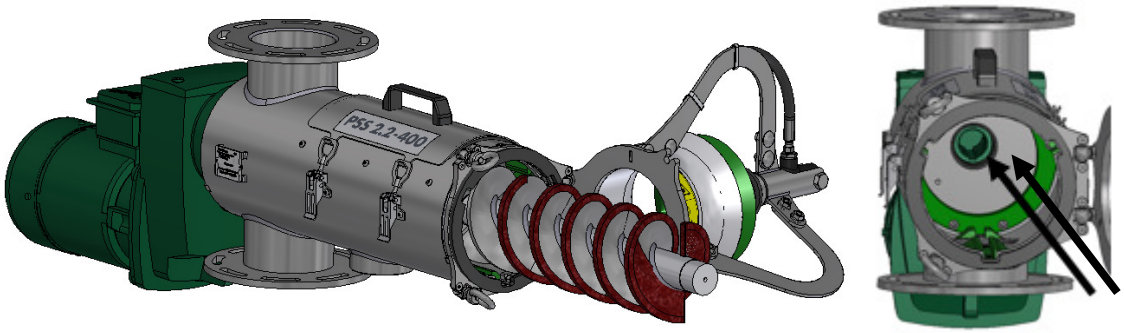
5. Remove the spacer ring. You can now pull out the sieve. (If reusing, take note of how the sieve was installed.)



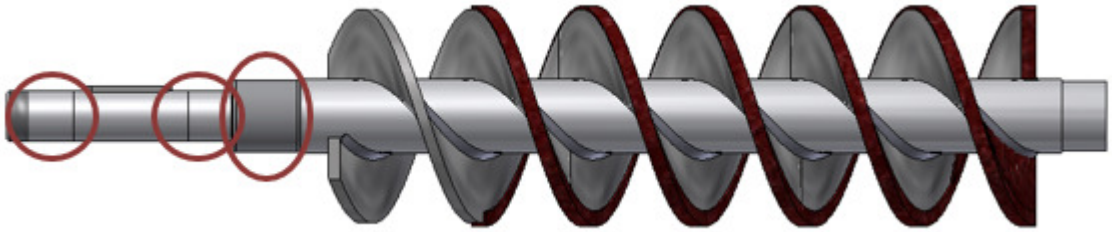
6. *** Loosen the grooved gear nut.



7. *** You can now pull out the press screw carefully. Take care with the shaft seal rings to avoid causing damage.

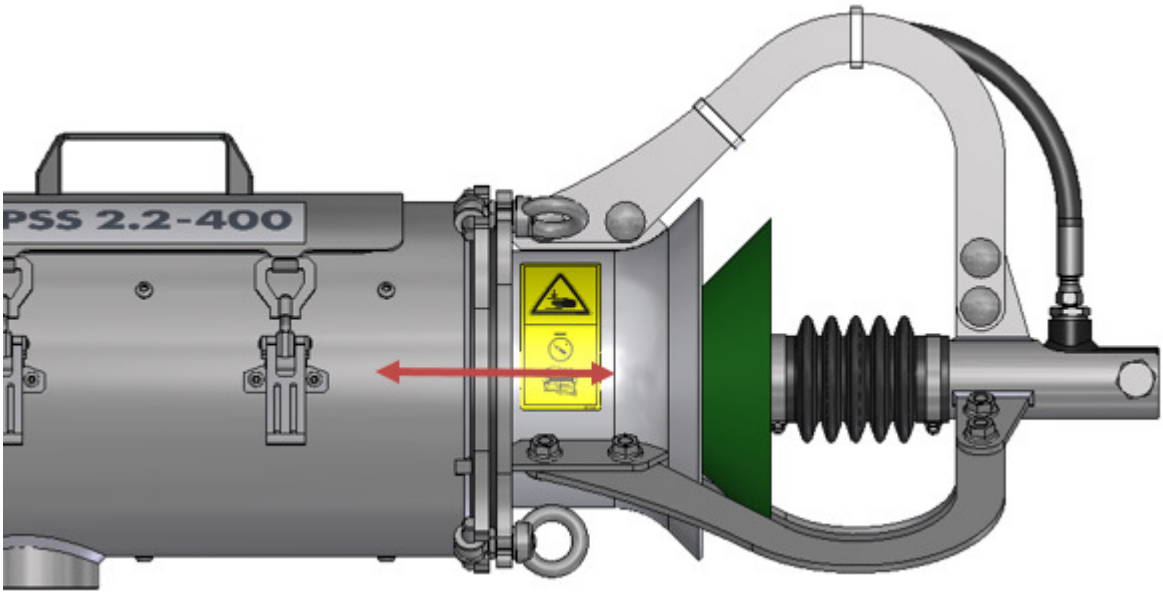


8. Clean the separator from the inside to remove any residues.
9. *** Take the new press screw. Lubricate the bearing surfaces with fitting lubricant. Grease the sealing surface lightly.



10. *** Slide in the new press screw carefully. Make sure that the shaft seal rings are not damaged in the process. Secure the press screw again with the grooved nut.
11. Slide in the new sieve. Pay attention to the installation position of the sieve. The marking must match the direction of rotation of the press screw. If the separator has a low throughput, you can turn the sieve for better performance. When using the old sieve, install it the same way as it was before.

12. Insert the spacer ring back on and close the flap. Make sure that the sieve doesn't get deformed in the process.



13. The machine can be taken into operation again.

10.4 Recommendation at end of service life

At the end of its service life, the device can be disposed of normally as scrap. The oils should be removed in advance and disposed of properly. The device is composed of various metals: steel, aluminium, copper and stainless steel. Dismantling it into the metal groups considerably increases returns.

11 NOTES

11.1 Regulation of the professional association

The following accident prevention regulations of the Agricultural Professional Association can be found in Paragraph 2.8 under "Special Provisions for Pits and Canals":

Paragraph 2.8

§ 1 Protection against falling in

(1) Pits, ditches, canals, wells and other similar pits in the house and courtyard area must be protected with railings or coverings to prevent persons falling in. If these are not deeper than 100 cm, other safety precautions can suffice.

§ 2 Openings

(1) If removal and entries openings, etc., are opened, it must be guaranteed that persons and objects cannot fall in.

(2) Pits and canals that are customarily entered must have facilities which permit risk-free entry. The openings of these pits and canals must be dimensioned in such a way to allow the rescue of any casualties.

§ 3 Entry

(1) Before entry and during the presence in pits and canals, ensure that sufficient respiratory air is present and that plant facilities are reliably protected against being switched on. The handling of naked flames is not permitted.

(2) Entry for the recovery of an accident victim is only permissible if two other persons secure the entering person with a rope which is firmly anchored outside the tank.

§ 4 Tanks and canals for animal faeces

(1) For tanks and canals in the open air, it must be guaranteed by suitable measures that fermentation gas cannot flow into the buildings.

(2) Closed tanks in the open air must have vent openings on opposite lying sides.

(3) If tanks and canals are found in the buildings - also under slatted floors - it must be guaranteed that fermentation gases are conducted away from the buildings.

(4) If tanks and canals in the buildings are furnished with agitating, pumping and rinsing plants, facilities for the removal of fermentation gases must be present which automatically switch on when the agitator and rinsing works are operating. They may only be switched off after conclusion of the work process. The gases conducted away must not endanger persons.

(5) Canals must be designed so as to avoid any unnecessary whirling up of the faeces.

(6) Operating stations for agitating, pumping and rinsing, etc., equipment must be built up over the floor.

(7) Closed rooms in which there are operating stations may not have openings to the tanks and canals.

(8) Operation instructions must be permanently attached to the operating stands.

§ 5 Removal of animal faeces from tanks and canals

(1) No smoking and no naked flames are allowed in the immediate proximity of removal openings during the agitating and removal of faeces.

(2) In the buildings in which there are open tanks and canals, the presence of persons and animals during agitation and removal is only permissible with sufficient ventilation.

§ 6 Warning signs

(1) Easily visible warning signs must be attached to openings of tanks and canals which indicate the danger of the gases.

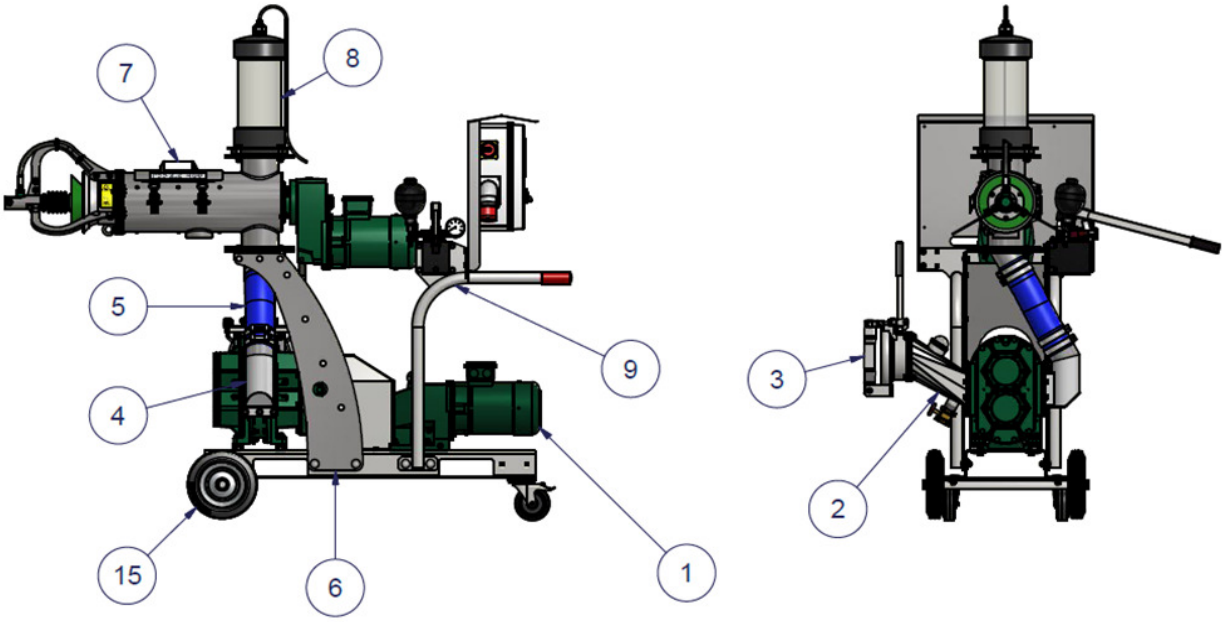
(2) Refer to the "Information Sheet with Notice, Warning, Prohibition and Rescue Signs" of the Federal Association of Agricultural Trade Associations.

12 SPARE PARTS LIST FOR THE PSS-M1508, 2.2KW

The spare parts lists for the separator and the rotary pump can be found in the operating manual of the separator and the rotary pump.

ComPress

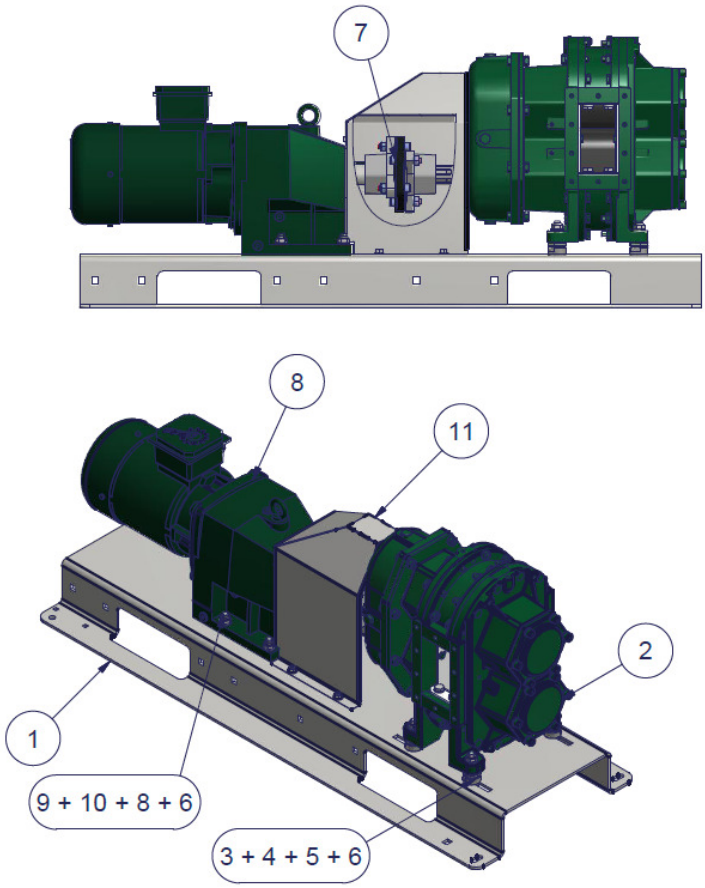
Pos.	Z pos.	Part	Amt.	Unit	Description
10	1	6130148	1	pc.	Rotary pump D-SW70S GM 2.2kW 123 rpm NORD
20	2	6090359	1	pc.	DKP SW70 suction side connection
30	3	6430094f	1	pc.	Quick coupling 6" short version, M part connection
40	4	6090361	1	pc.	Complete DKP 4" ComPress connector
50	5	7090677	1	pc.	Spiral hose 4" L=0.4m for ComPress
60	6	6090360f	1	pc.	Foot for Separator ComPress including hose connector
70	7	6090437	1	pc.	Press screw separator PSS 2.2-400
80	8	6090439f	1	pc.	ComPress pressure measuring unit 0-0.6 bar
90	9	6090425f	1	pc.	Hand grip, complete with hydraulic unit
100	10	6090442	1	pc.	Separator ComPress control
110		5310601	1	M	Ölflex servo 719 CY 4G 1.5 mm² + (2 x 1.5)
120		5310257	1	M	Ölflex cable 5.0x1.5 mm YSLY-JZ
130		5310430	1	M	Spiral hose HEL SBPEFR9 BK-PE
140		5350007	1.3	L	Aviaticon HY-HE 46 hydraulic oil
150	15	6090370	1	pc.	Chassis for ComPress



Drawing: 34-0688

6130148 Rotary pump D-SW70S GM 2.2kW 123 rpm NORD

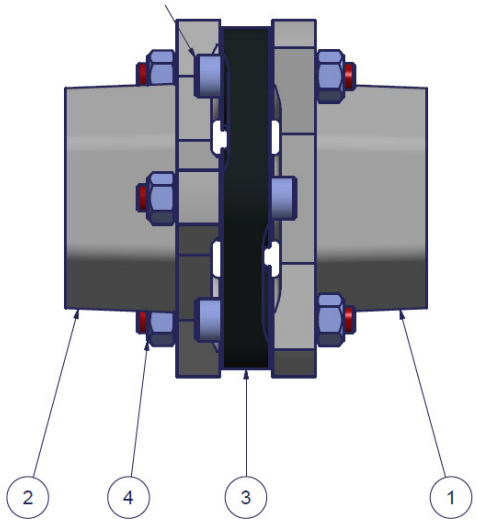
Pos.	Z pos.	Part	Amt.	Unit	Description
10	1	7130352	1	pc.	Motor console for DKP SW 70/140 galvanised
20	2	6130097	1	pc.	DKP D-SW70 S SBR Mod.08 for tractor with SBR piston
30	3	6090325	4	pc.	Compensation element for DKP 21-30 mm set
40	4	5200328	4	pc.	Round-head screw M12x70 DIN 603 A2
50	5	5200101	8	pc.	Washer 13.0 DIN 125 A2
60	6	5200091	8	pc.	Hex nut M12 mm DIN 985 A2
70	7	6090358	1	pc.	HexaFlex coupling 48 tractor galvanised to Ø40
80	8	7090530	1	pc.	Spur gear motor 2.2 kW NORD SK32-100LH/4
90	9	5200292	4	pc.	Washer 13.0 DIN 9021 A4
100	10	5200033	4	pc.	Hexagon head screw M12x50 DIN 931 A2
110	11	6090357	1	pc.	Protective plate HexaFlex coupling DKP-NORD-SK32 complete



Drawing: 34-0688-002

6090358 HexaFlex coupling 48 tractor drive teeth to Ø40

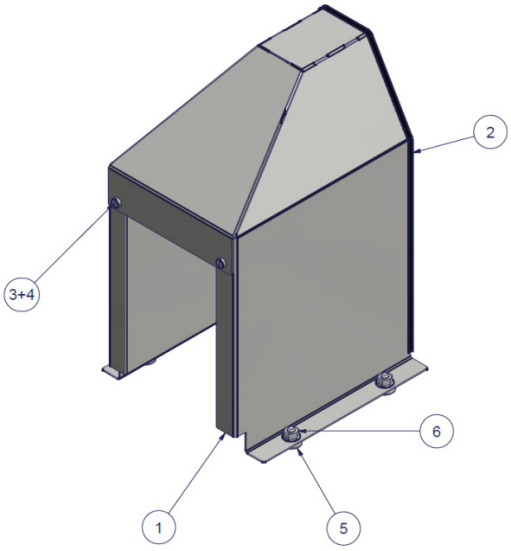
Item	Z pos	Part	Amt	Unit	Description
10	1	5290401	1	pc.	Flange size 48 d= 40 H7, groove acc. to DIN6885/1
20	2	5290402	1	pc.	Flange size 48 d= PTO shaft acc. to ISO 500
30	3	5290403	1	pc.	Flexible disc no. 313.48 Md= 350 Nm
40	4	5290404	1	pc.	Screw set no. 313.38/48



Drawing: 22-1173

6090357 Protective plate HexaFlex coupling DKP-NORD-SK32 complete

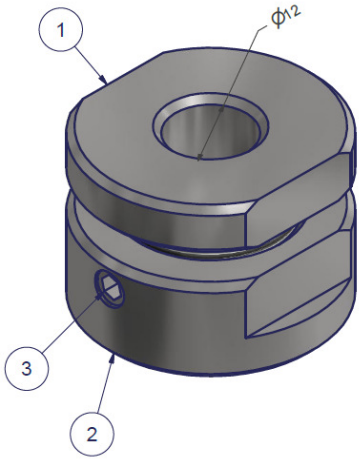
Item	Z pos	Part	Amt	Unit	Description
10	1	7090435	1	pc.	Protective cover DKP for separator mobile unit
20	2	5480037	0.75	M	Edge protection for sealing profile, black 08582
30	3	5200070	2	pc.	Cyl. screw with slot M6x12 ISO 1207 / DIN 84 A2
40	4	5200236	2	pc.	Cyl. screw M6x12 ISO 4762 / DIN 912 A2
50	5	5200178	4	pc.	Round-head screw M8x16 DIN 603 A2
60	6	5200354	4	pc.	Hex nut M8 with collar and locking teeth



Drawing: 34-0688-007

6090325 Compensation element for DKP 21-30 mm set

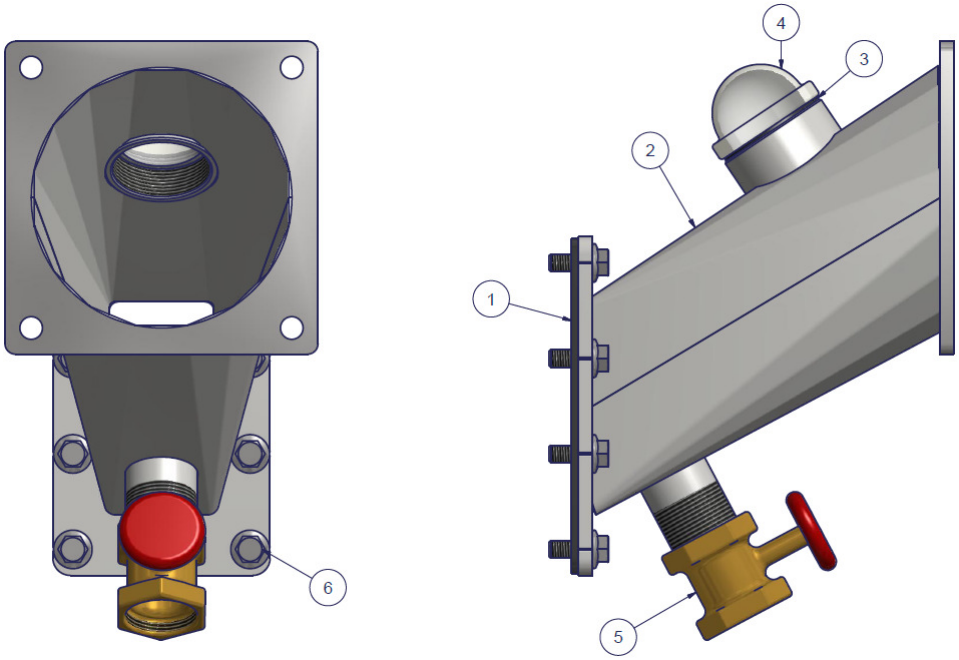
Item	Z pos	Part	Amt	Unit	Description
10	1	7090473	1	pc.	Top part compensation element for DKP
20	2	7090474	1	pc.	Bottom part compensation element for DKP
30	3	5200333	1	pc.	Set screw M6x6 ISO 4027 / DIN 914



Drawing: 34-0617-56

6090359 Suction side connection DKP SW70

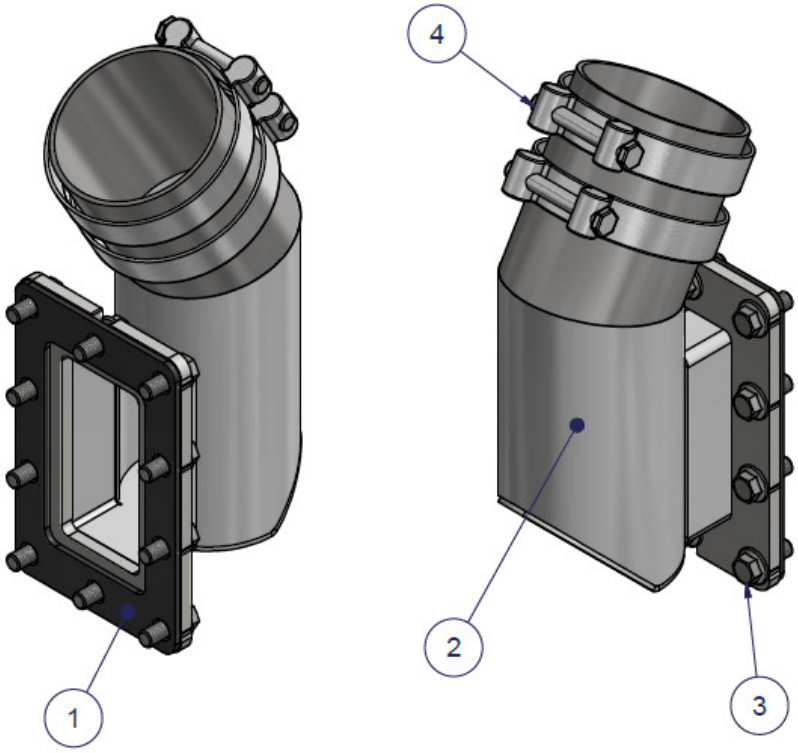
Item	Z pos	Part	Amt	Unit	Description
10	1	5700070	1	pc.	Flange seal for DKP B70/70
20	2	6130144	1	pc.	Connector DKP B70 welding part
30	3	5700050	1	pc.	Rubber seal for 2" inspection glass
40	4	5700049	1	pc.	MZ 2" inspection glass only to be installed on suction side
50	5	5700051	1	pc.	Socket slide valve 1 1/4"
60	6	5200345	10	pc.	Hexagon head Ratchet screw M10x25 DIN 6921 (similar)



Drawing: 34-0688-019

6090361 Complete DKP 4" ComPress connector

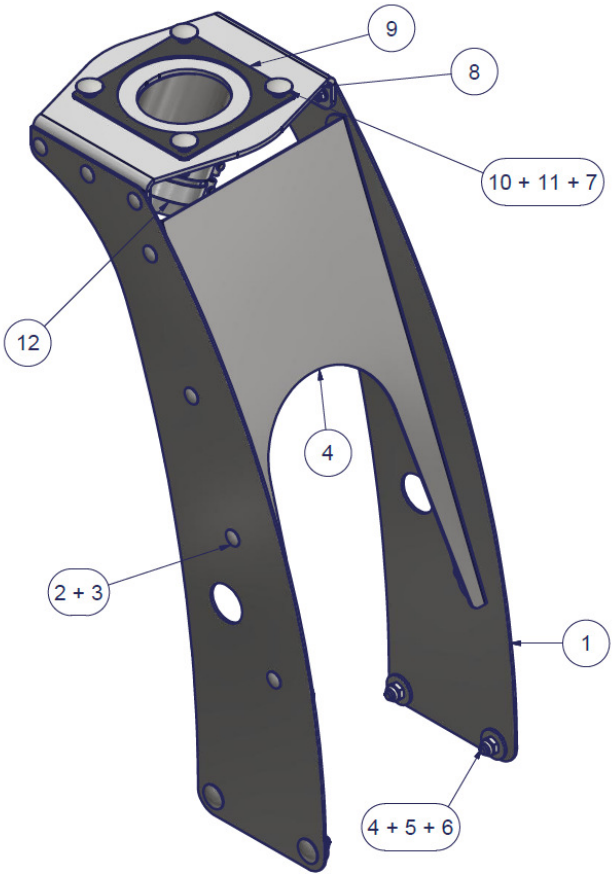
Item	Z pos	Part	Amt	Unit	Description
10	1	5700070	1	pc.	Flange seal for DKP B70/70
20	2	6090421	1	pc.	ComPress connector DKP 4" - welding part
30	3	5200345	10	pc.	Hexagon head Ratchet screw M10x25 DIN 6921 (similar)
40	4	5500110	2	pc.	"SUPER" clamp ring stainless steel 4" Ø113-121 mm



Drawing: 34-0688-015

6090360 Support for Separator ComPress including hose connector

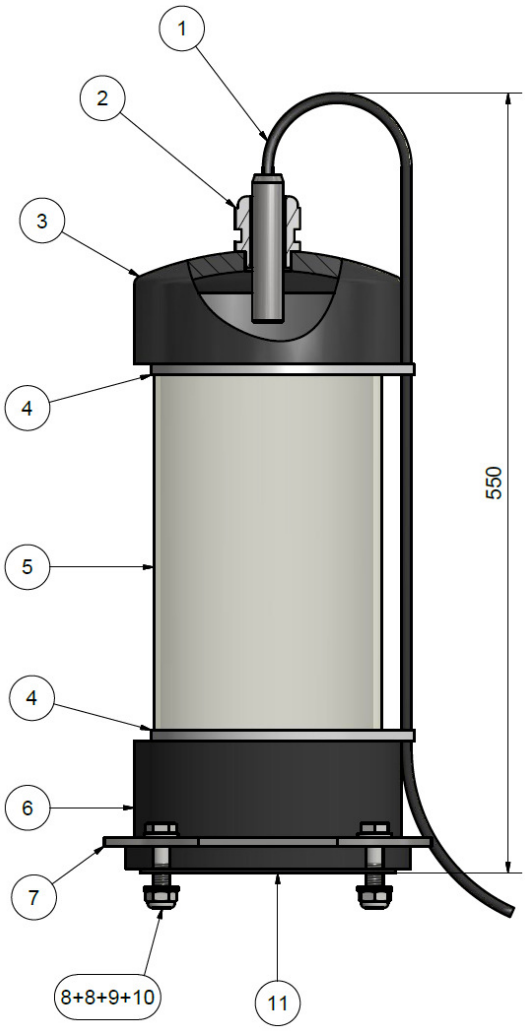
Item	Z pos	Part	Amt	Unit	Description
10	1	7090621	2	pc.	Side plate for ComPress 1.4301 foot
20	2	5200178	14	pc.	Round-head screw M8x16 DIN 603 A2
30	3	5200354	14	pc.	Hex nut M8 with collar and locking teeth
40	4	7090622	1	pc.	Intermediate plate for ComPress 1.4301 fut
50	5	5200177	4	pc.	Round-head screw M12x30 DIN 603 A2
60	6	5200292	4	pc.	Washer 13.0 DIN 9021 A4
70	7	5200091	8	pc.	Hex nut M12 mm DIN 985 A2
80	8	6090413	1	pc.	4" flange with connector for ComPress foot - welding part
90	9	5500074	1	pc.	Rubber flange seal 4-6" for standard square flange 4-6"
100	10	5200327	4	pc.	Round-head screw M12x45 DIN 603 A2
110	11	5200101	4	pc.	Washer 13.0 DIN 125 A2
120	12	5500110	2	pc.	"SUPER" clamp ring stainless steel 4" Ø113-121 mm



Drawing: 34-0688-010

6090439 ComPress pressure measuring unit

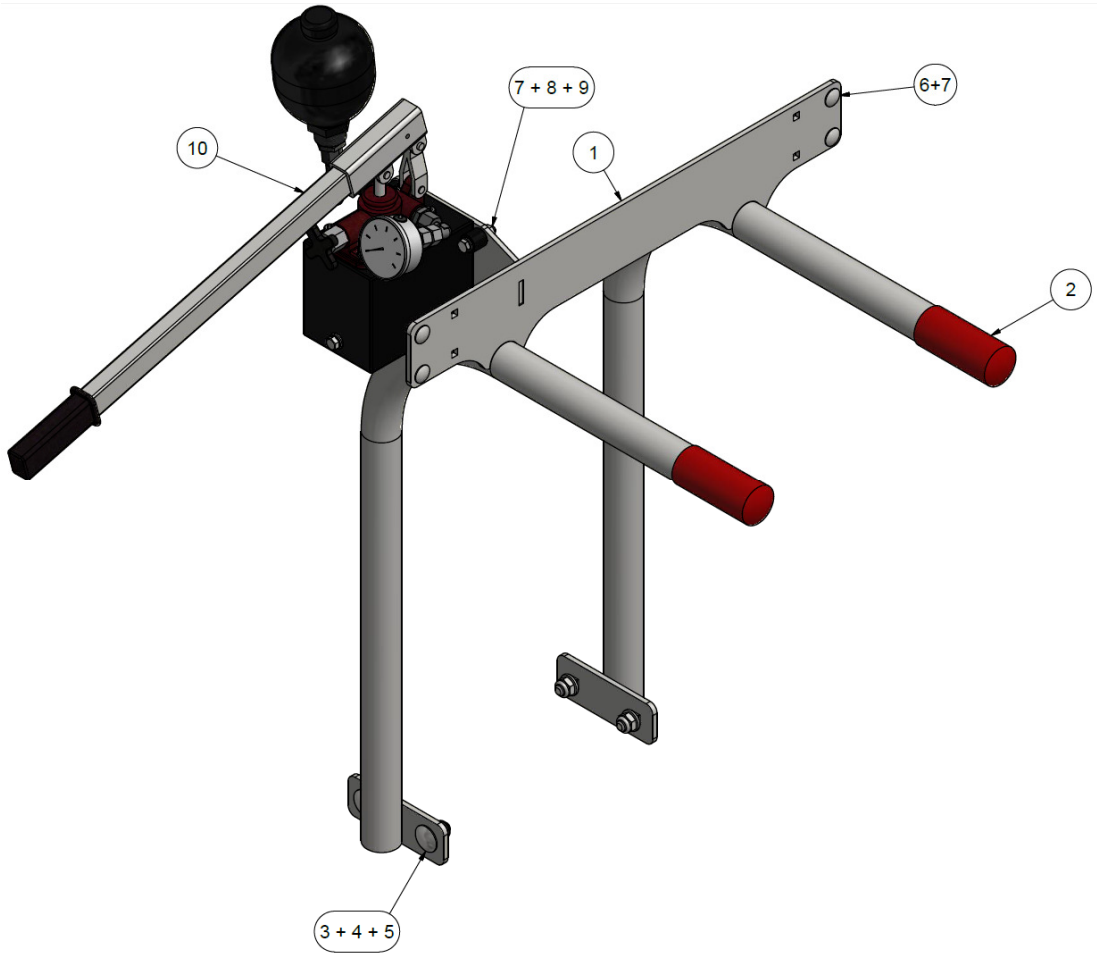
Item	Z pos.	Part	Amt	Unit	Description
10	1	5310434	1	pc.	Immersion probe with ceramic sensor Ø 22 mm,
20	2	5310232	1	pc.	Plastic cable screw connection M32 x 1.5
30	3	7090672	1	pc.	PVC cap DN160 with M32x1.5 thread
40	4	5320086	6	pc.	Cableties 280 x 7.6 mm, colour: natural
50	5	7090673	1	pc.	PVC pipe DN160 L=400 transparent
60	6	5500524	1	pc.	PVC flange sleeve 6" twisted
70	7	5100165	1	pc.	Flange ring 1.4301 for PVC flange sleeve 6"
80	8	5200101	8	pc.	Washer 13.0 DIN 125 A2
90	9	5200007	4	pc.	Hexagon head screw M12x55 DIN 933 A2
100	10	5200091	4	pc.	Hex nut M12 mm DIN 985 A2
110	11	5500074	1	pc.	Rubber flange seal 4-6" for standard square flange 4-6"



Drawing: 34-0688-012

6090425f Hand grip, complete with hydraulic unit

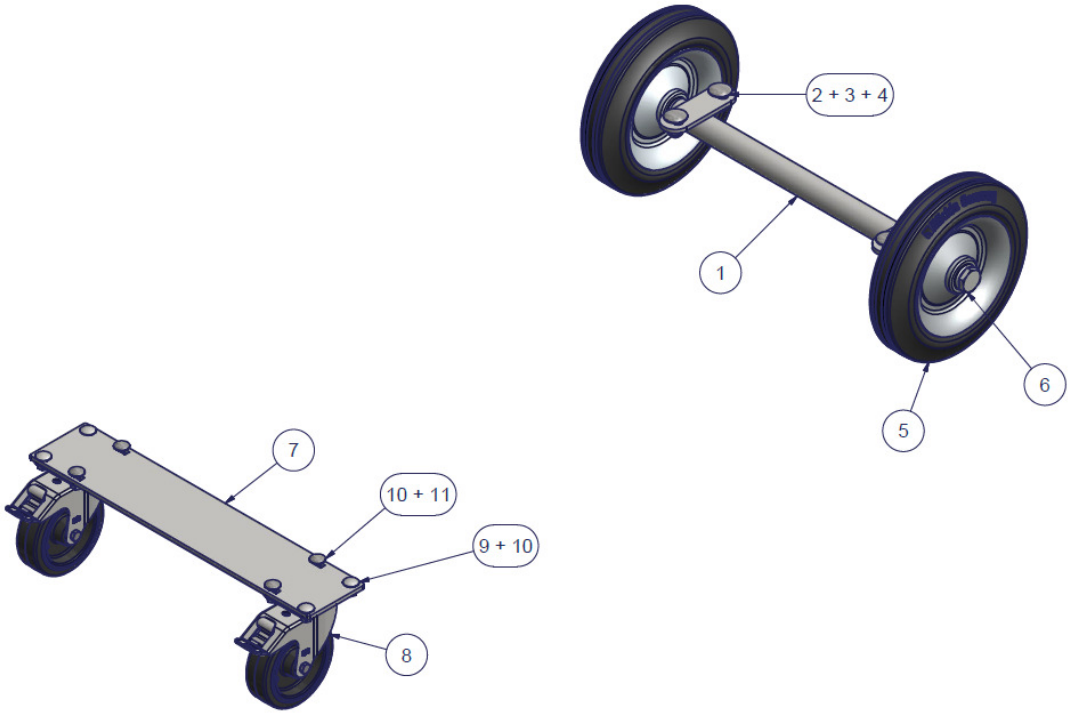
Item	Z pos.	Part	Amt	Unit	Description
10	1	6090424	1	pc.	Hand grip with switch-plate support and hydraulic pump
20	2	5320078	2	pc.	PVC hand grip Ø 42.4 x 110mm, colour: red
30	3	5200177	4	pc.	Round-head screw M12x30 DIN 603 A2
40	4	5200101	4	pc.	Washer 13.0 DIN 125 A2
50	5	5200091	4	pc.	Hex nut M12 mm DIN 985 A2
60	6	5200178	4	pc.	Round-head screw M8x16 DIN 603 A2
70	7	5200354	8	pc.	Hex nut M8 with collar and locking teeth
80	8	5200099	4	pc.	Washer 8.4 DIN 125 A2
90	9	5200123	4	pc.	Hexagon head screw M8x40 DIN 933 A2
100	10	6090369f	1	pc.	Hydraulic unit for separator with tank, pump, nitrogen tank



Drawing: 34-0688-041

6090370 Chassis for ComPress

Item	Z pos.	Part	Amt	Unit	Description
10	1	6090423	1	pc.	Axle for ComPress chassis
20	2	5200177	4	pc.	Round-head screw M12x30 DIN 603 A2
30	3	5200101	4	pc.	Washer 13.0 DIN 125 A2
40	4	5200091	4	pc.	Hex nut M12 mm DIN 985 A2
50	5	5460002	2	pc.	Solid rubber tyres V 252/25 R
60	6	7110159	2	pc.	Axle bolts for 3+4 kW TMR chassis
70	7	7090635	1	pc.	Castor fastening ComPress chassis
80	8	5460060	2	pc.	Castor steel plate with screw-on plate & wheel brake
90	9	5200178	4	pc.	Round-head screw M8x16 DIN 603 A2
100	10	5200354	8	pc.	Hex nut M8 with collar and locking teeth
110	11	5200375	4	pc.	Countersunk screw M8x20 DIN 603 A2



Drawing: 34-0688-018

13 MAINTENANCE AND REVISION LIST FOR PSS-M1508

Each person must properly enter all maintenance and revision work in the list and confirm it with his or her own signature and that of the person responsible.

This list must be submitted to the supervisory bodies of the professional association, the TÜV and the manufacturer on request.

Maintenance / revision on device with the machine no.	Notes	Date	Signature of installer	Signature of person respon-sible

Maintenance / revision on device with the machine no.	Notes	Date	Signature of installer	Signature of person respon-sible

You can find us here

Stallkamp

...Lead by innovative technology

Dinklage lies in the heart of Oldenburg Minster Country.

From the exit (A1) Lohne Dinklage No. 65, direction Dinklage, towards Dinklage Vechta, then industrial area West.

- Pump technology
- Agitating technology
- Stainless steel tanks
- Separation technology

Erich Stallkamp ESTA GmbH
In der Bahler Heide 4 – Industriegebiet West – 49413 Dinklage, Germany
Tel. +49 (0) 44 43 / 96 66-0 – Fax +49 (0) 44 43 / 96 66-60
info@stallkamp.de – http://www.stallkamp.de

Stallkamp – the competent solution for every application